COTATI DOWNTOWN CORE MASTER PLAN

December, 2000

Prepared by:

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CONSULTING ENGINEERS

W-TRANS

Credits

City of Cotati, California

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Conducted with the help of the following community members and agencies:
Downtown merchants
Downtown property owners
Walkable Cotati
Cotati Police Department
Rancho Adobe Fire Protection District

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This report was prepared for the City of Cotati by Fisher & Hall Urban Design in conjunction with Winzler & Kelly and W-Trans. For background information on details in this report , contact Laura Hall at Fisher & Hall at (707) 544-1910.

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COTATI VISION PLAN (April 2000)
PHASE I DESCRIPTION

"DEVELOP THE DOWNTOWN CORE"

The April 2000 Cotati Vision Plan stressed that, "It is very important to produce immediate results that stakeholders, press and other people can see. For example, a new section of sidewalk, new street lights, benches and trash receptacles, drinking fountains or freshly painted crosswalk and refuge islands are visible, while a transportation plan is a paper document that may never be seen or appreciated by the public. The point is that a program, to keep its momentum, needs some quick wins. These early achievements are real, vital and create the sense that something is happening; that government and business people are responsive."

The Cotati Vision Plan suggested a list of streetscape items as part of a Phase I design process. The City of Cotati authorized the design team to conduct a public process to identify and prioritize community preferences from this list, and to develop a Downtown Core Master Plan. The following is the list of items that were recommended in the Phase I of the Cotati Vision Plan:

- ☐ Wider sidewalks
- ☐ Additional diagonal parking on Old Redwood Hwy.
- ☐ Additional diagonal parking on side streets
- ☐ Median on Old Redwood Hwy.
- ☐ Street furniture
- ☐ Many sitting places
- ☐ Enlarge curb extensions
- ☐ Choke entry points to 24 feet
- ☐ Unified architectural character
- ☐ Narrow Old Redwood Highway to two lanes
- ☐ Add roundabouts at Old Redwood Hwy. and at La Plaza and Henry
- ☐ Double canopy of trees
- ☐ Provide incentives for uniform façade
- ☐ Encourage new developers to share vision
- ☐ Identify and encourage residential service retail
- ☐ Improved management of parking
- ☐ Better defined plaza space
- ☐ More public art
- ☐ Eliminate blank walls
- ☐ Unified quality store exterior appearance
- ☐ Quality bike parking
- ☐ Traffic calm outer hexagon
- ☐ Modify E. Cotati bicycle/pedestrian crossing

EXISTING CONDITIONS IN THE DOWNTOWN CORE

The following conditions exist in Downtown Cotati and present opportunities for streetscape improvements:

Some street tree roots are uplifting sidewalks and causing tripping hazards, such as this one in front of Exchange Bank.

The gravel path at the bridge makes accessibility difficult for pedestrians, bicyclists and especially challenging for wheelchair users.

Streetlights are scaled for automobiles, not for pedestrians.

Large trucks in the downtown disturb the ambience for pedestrians and outdoor diners.

Drivers speeding through the E. Cotati Ave. & Old Redwood Hwy. intersection make dangerous conditions for pedestrians & bicyclists.

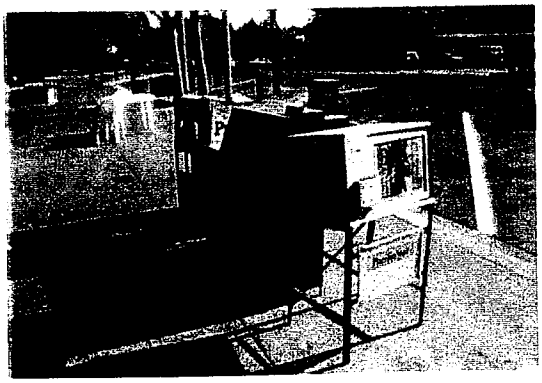
EXISTING CONDITIONS IN THE DOWNTOWN CORE (con'd.)

Some bicycle racks exist in the downtown, but more are needed.

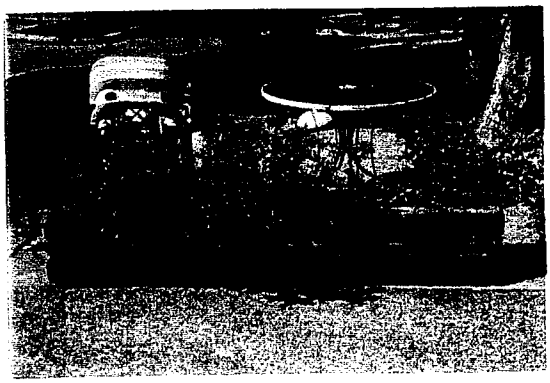
The existing intersection at Charles/Henry is expected to fail within the next 5-7 years.

Existing pear trees have excessive leaf drop, causing a mess year-round mess for merchants.

Some existing tables and chairs need upgrading.

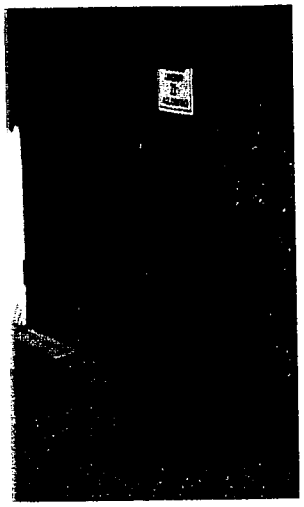


Existing newsracks need upgrading.

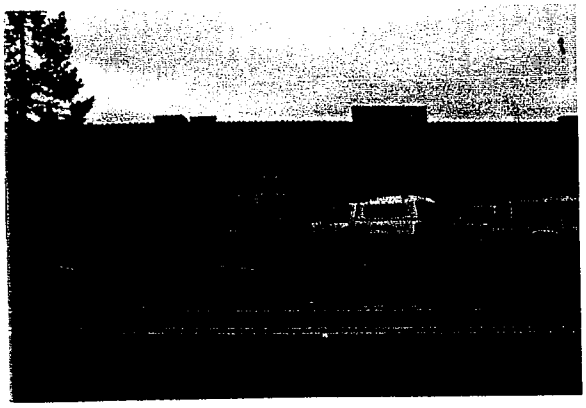


Some existing planters need upgrading.

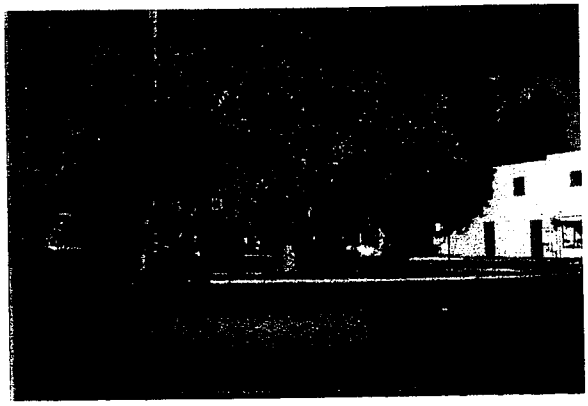
EXISTING CONDITIONS IN THE DOWNTOWN CORE (con'd.)



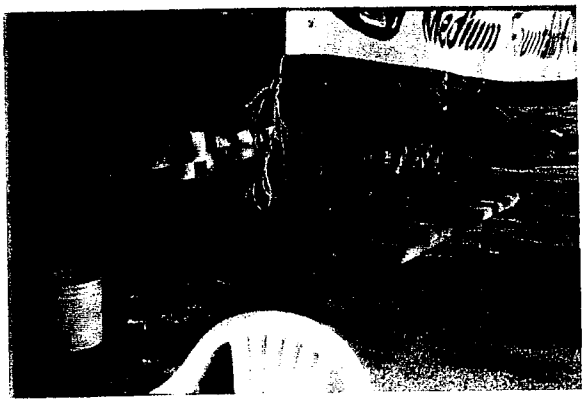
More and upgraded trash receptacles are needed in the downtown.



Merchants expressed an interest in having more parking in the downtown.



Blank walls detract from the character of the downtown.



More benches are needed in the downtown.

Public Involvement Process

OVERVIEW

Members of the community are the key players in the design of their downtown. Because of this, the design team conducted extensive meetings and other forms of outreach throughout the entire design process. This public involvement process included the following:

- Three *sets* of stakeholder meetings - with the downtown merchants and property owners; Walkable Cotati; and emergency personnel;
- Two written surveys – mailed to merchants and property owners in the downtown core;
- Two community workshops – October 9th and November 9th;
- Joint City Council/Planning Commission and Design Review Committee public hearing – December 6th , and
- City Council meeting – December 13th.

These meetings, surveys and public hearings are all described more fully in the following pages.

STAKEHOLDER MEETINGS

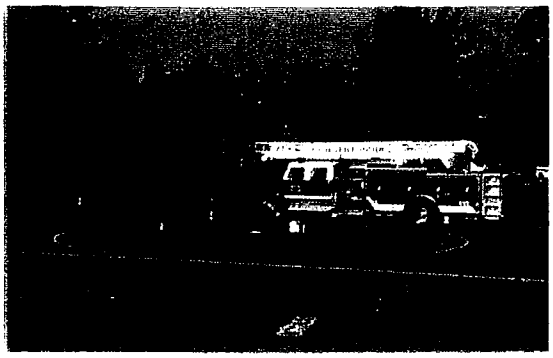
A series of stakeholder meetings were held throughout the design process. Meetings with Walkable Cotati and downtown merchants and property owners took place at City Hall as well as in the downtown core. The design team met with members of the Cotati Police Department and Rancho Adobe Fire District, both at City Hall and in an infield roundabout demonstration. The following images are from some of these stakeholder meetings:

Meeting with the merchants in the downtown.

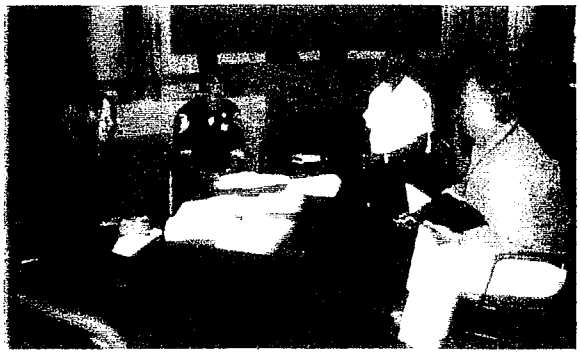
Merchants discussing options for use of space.

Meeting with Walkable Cotati.

Members of Walkable Cotati identifying locations for new street furnishings.



Field demonstration of emergency vehicles navigating roundabouts of various sizes.



Meeting with Chief of Police Robert Stewart and Fire Battalion Chief Fred Bechtold.

SURVEYS

Two surveys were sent to downtown property owners and merchants in the core area. Survey #1 was mailed on Sept. 27, 2000. [A copy of this survey can be found in the appendix of this report.] Following are the results of the surveys.

SURVEY #1

*1. **DOWNTOWN MERCHANTS** (23 mailed, 11 returned):*

Question #1: What most benefits you currently in operating a business in Downtown Cotati? (check as many as apply)

1. Lots of pedestrians (6 responses)
2. Out-of-towners driving through Cotati (5)
3. Lots of car traffic (4)
4. The variety of shops and services (3)
5. Accessibility (1)
6. Central County location (1)
7. Great location (1)
8. Quaint buildings and atmosphere (1)
9. Plentiful parking (1)
10. Outdoor seating (1)

Question #2: What are the biggest obstacles you face in operating a business in Downtown Cotati? (check as many as apply)

1. Noisy trucks (6)
2. Not enough landscaping/color (5)
3. Inadequate lighting (4)
4. Not enough parking (4)
5. Not enough variety of businesses (4)
6. Inadequate signage (2)
7. Not enough shade (1)
8. Not enough vehicular traffic (1)
9. Not enough seating (1)

Question #3: Phase 1 of the Cotati Vision Plan could include the following new amenities for downtown. Prioritize the ones that would most improve your business.

1. Public art, banners, additional diagonal parking on side streets
2. Pedestrian-scaled lighting, street clock, more trash cans, attracting recycling containers, public restrooms, hanging baskets, more public benches, attractive newsstands
3. Flower kiosks, drinking fountains
4. Quality bike parking
5. Public telephones, awnings

Question #4: The existing traffic control at Charles/Henry – a 4-way stop – is projected to fail within the next 5 years. What solution for that intersection would best benefit your business?

1. Traffic signal (4)
2. Roundabout (3)
3. Do nothing (2)
4. Prohibit large trucks (1)

Question #5: In response to concerns about unsafe traffic speeds and pedestrian safety at Old Redwood Highway and La Plaza, what solution for that intersection would best benefit your business?

1. Do nothing (5)
2. Roundabout at Old Redwood Highway/La Plaza (2)
3. Traffic signal (2)

Question #6: Street construction work in the downtown will occur next year. During this process, what construction periods would be the <u>least</u> detrimental to your business?

1. <u>Time of day:</u>
   1st choice – mornings, early mornings (7), early morning to mid-afternoon (1)
   2nd choice – evening (2), late afternoon (1)

2. <u>Day of week:</u>
   1st choice – Monday (1), Monday - Friday (1), Monday – Wednesday (1), Saturday – Monday (1), Tuesday (1), any (1), Monday – Thursday (1), Monday – Tuesday (1)
   2nd choice – Monday – Wednesday (1), Wednesday (2), Sunday – Wednesday (1)

3. <u>Time of year:</u>
   1st choice – Winter (2), summer (2), June (1), August (1), spring (1), January (1)
   2nd choice – July (1), summer (1), February (2), spring (1)

Question #7: To guide us to an appropriate style of new street amenities, what do you see as representing the essence of Cotati? (check as many as apply)

1. Traditional small town (6)
2. Native American/Chief Kotate (5)
3. Arts, dance and music (5)
4. Craftsman style (4)
5. Eclectic/quirky (2)
6. Rural (1)

Question #8: What is important to you about new <u>street trees</u> in the downtown? (check as many as apply)

1. That they don't block my store sign (5)
2. That twinkle lights can be hung on them (3)
3. That they don't block the sun in the winter (3)
4. That they provide plenty of shade (2)
5. Minimum cleanup (1)
6. More color (1)
7. Large trees (1)
8. Don't need new street trees (1)

9. Other: The trees in downtown should be saved. As an alternative to removing them is to redo the sidewalks. While not exactly "heritage" trees, the mature sycamores signify that Cotati is an established town with a history, not just another strip mall.

Question #9: Is there anything else that you would like to tell us about street improvements for Downtown Cotati?

- Eliminate the truck route through town.
- Pedestrian crossing should be better marked (i.e., downtown Petaluma)
- All traffic needs to slow down.
- Hanging flower baskets on street lamps or whatever would be a very nice touch.
- More landscaping shrubs, trees, flowers could help soften the flat fronts of some of the buildings.
- The sign size is too small for some of the buildings.
- The downtown area looks somewhat run down and dirty. There really isn't any point in making improvements if they won't be maintained. Our sidewalk needs sweeping, flowerbeds cleaned up, buildings need to be painted and kept up. Even what we've got right now would look better if it were cleaned up and maintained.
- I've had my business for 20 years. The streets of Downtown Cotati are fine and fully functional! Why not use the money elsewhere, like a recreation center for Cotati youth.
- Eliminate all the wild youth at the Inn of the Beginning. They become violent after hours.
- Too many bars. We need more cultural and traditional activities; a safe place for children and senior citizens. Eliminate liquor licenses and restrict bar activities. More flowers and more trees and more benches.
- Road signs need to be attractive and clearly marked (can't see Charles St. sign). Attractive, well-landscaped downtowns with good parking (preferable off the main street o make downtown more amendable to pedestrians) attract pedestrians and shoppers.
- Installing curbs & gutters on Charles and Henry Streets would automatically increase parking. Reverse-in diagonal parking is a very bad idea. Consider the person tailgating you when you want to back in.

*2. **DOWNTOWN PROPERTY OWNERS** (11 mailed, 2 returned):*

Question #1: What most benefits you currently in operating a business in Downtown Cotati? (check as many as apply)

1. The variety of shops & services
2. Plentiful parking
3. Lots of seating
4. Out-of-towners driving through Cotati.

Question #2: What are the biggest obstacles you face in operating a business in Downtown Cotati? (check as many as apply)

1. Inadequate lighting (2)
2. Not enough parking (2)
3. Not enough landscaping/color (2)
4. Noisy trucks (2)
5. Not enough seating (1)

Question #3: Phase 1 of the Cotati Vision Plan could include the following <u>new amenities</u> for downtown. Prioritize the ones that would most improve your business.

1. Additional diagonal parking on side streets, drinking fountains, pedestrian-scale lights, flower kiosks, hanging baskets
2. More public benches, attractive newsstands, banners

Question #4: The existing traffic control at Charles/Henry – a 4-way stop – is projected to fail within the next 5 years. What solution for that intersection would best benefit your business?

1. Traffic signal (2)

Question #5: In response to concerns about unsafe traffic speeds and pedestrian safety at Old Redwood Hwy. and La Plaza, what solution for that intersection would best benefit your business?

1. Do nothing (2)

Question #6: Street construction work in the downtown will occur next year. During this process, what construction periods would be the <u>least</u> detrimental to your business?

4. <u>Time of day:</u>
   1st choice – late night (2)
   2nd choice – late night (2)

5. <u>Day of week:</u>
   1st choice – Monday (1), Sunday (1)
   2nd choice – Monday (2)

6. <u>Time of year:</u>
   1st choice – winter (2)
   2nd choice – winter (20

Question #7: To guide us to an appropriate style of new street amenities, what do you see as representing the essence of Cotati? (check as many as apply)

1. Traditional small town (2
2. Western "Old Town" (1)

Question #8: What is important to you about new <u>street trees</u> in the downtown? (check as many as apply)

1. That twinkle lights can be hung on them (2)

Question #9: Is there anything else that you would like to tell us about street improvements for Downtown Cotati?

- Street garbage cleanup regularly
- Flowers for landscaping – baskets, etc.
- Signal lights will provide safety. There have been no pedestrian injuries in 30 years, may more. Roundabouts are desirable only to the landscape on perimeters of the town.

SURVEY #2

A second survey [see sample in Appendix] was mailed to downtown merchants and property owners in November 2000. Merchants and property owners were asked to select their preferred streetscape and intersection designs. The results are as follows:

*1. **DOWNTOWN MERCHANTS** (24 mailed, 18 returned, 5 phoned in their response, 1 did not respond):*

Streetscape
Alternative 1 – 2 votes
Alternative 2 – 15 votes

Charles/Henry intersection

Alternate 1 - Traffic signal	11 votes
Alternate 2A - Roundabout with oak tree	3 votes
Alternate 2B - Roundabout with jazz musician sculpture	8 votes

*2. **DOWNTOWN PROPERTY OWNERS** (10 mailed, 7 returned)*

Streetscape
Alternative 1 – 1 vote
Alternative 2 – 4 votes

Charles/Henry intersection

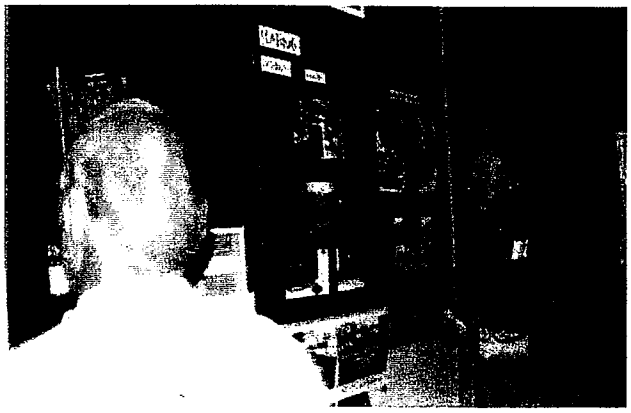
Alternate 1 - Traffic signal	6 votes
Alternate 2A - Roundabout with oak tree	1 votes
Alternate 2B - Roundabout with jazz musician sculpture	0 votes

COMMUNITY WORKSHOPS

Community workshops were held on October 9, 2000 and November 9, 2000. At the October 9th workshop, the community prioritized their preferences for downtown improvements from images that were based upon the list of Phase 1 suggestions from the Cotati Vision Plan of April 2000 (refer to Part One, "Cotati Vision Plan"). The following images are from the October 9th workshop:

Community Workshop #1 - residents discuss pros and cons of various streetscape images.

Voting on bench preferences.



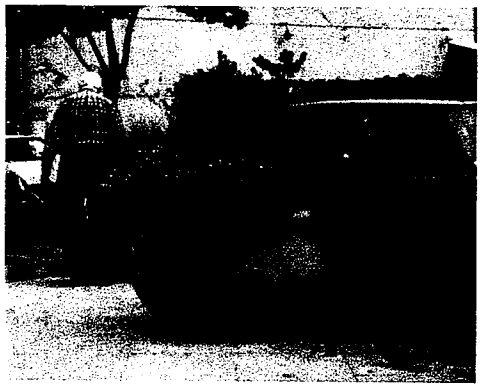
Pondering a vote.

Following are the streetscape furnishing images and street design ideas that the community preferred for the downtown core area:

Seatwalls of case stone.

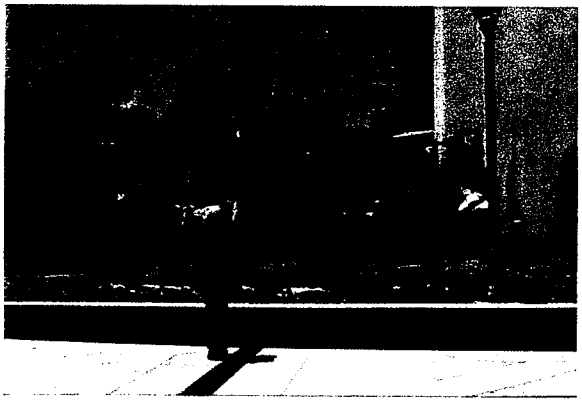
Naturalistic planting in tree wells.

Informal seating

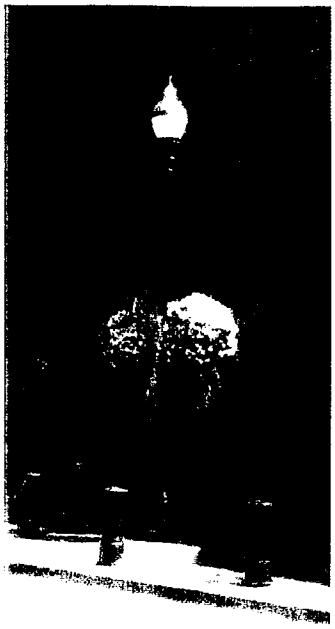


Large terra cotta pots

Wooden bench surrounded by plantings



Whimsical public art

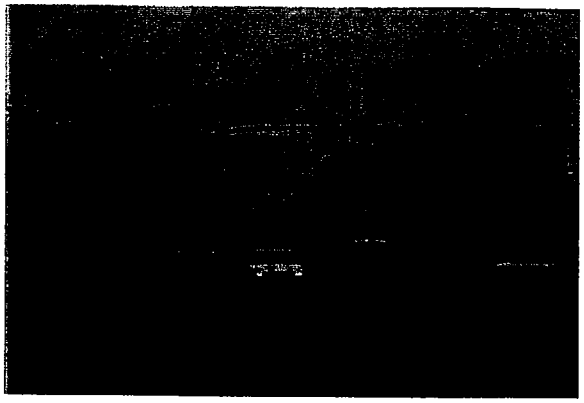


Pedestrian-scaled acorn lighting with hanging flower baskets

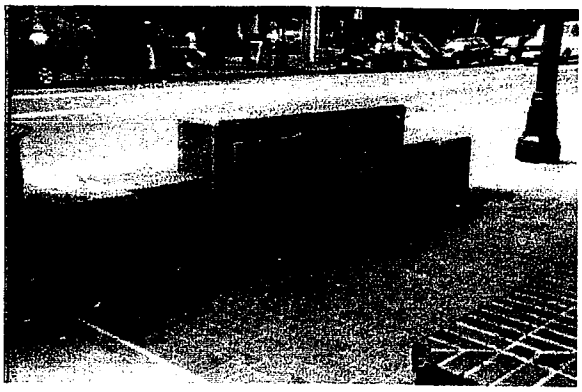
Twinkle lights in street trees

Terra cotta street fountain.

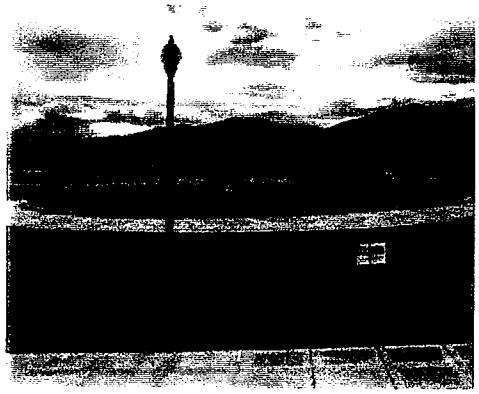
Metal tree grates



Traffic signal for Henry/Charles intersection like this one at W. Sierra and Old Redwood Hwy. (10 votes)

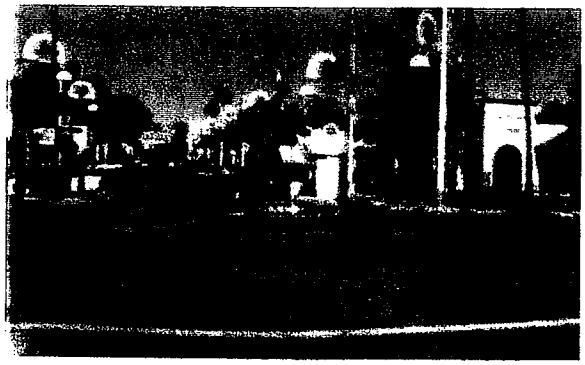


Cast stone newsracks



Landscaped roundabout image for Henry/Charles intersection (9 votes)

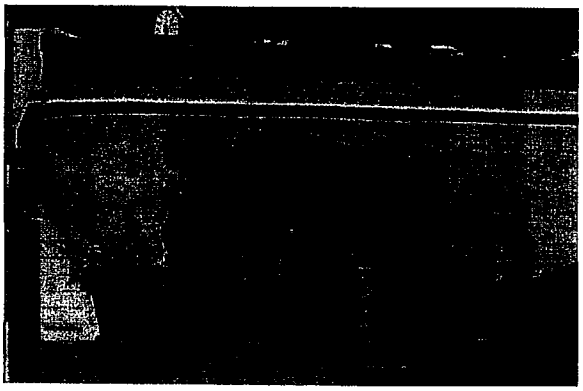
Decorative arch over pedestrian passageway



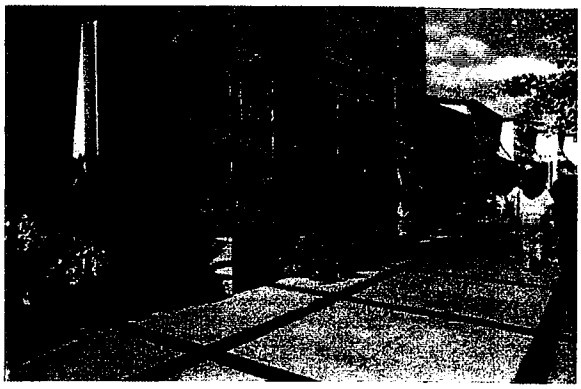
Sculptural roundabout image for Henry/Charles intersection (4 votes)

Flower kiosk

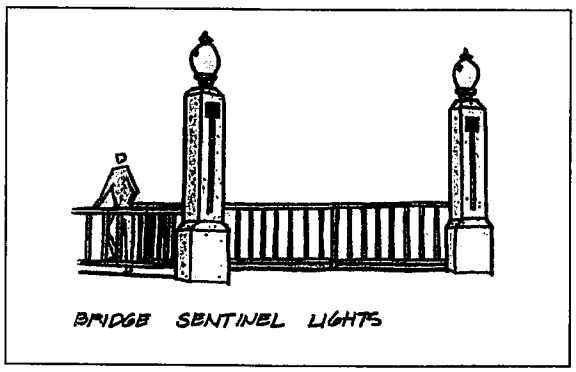
Example of a decorative element for parking lot entrance.



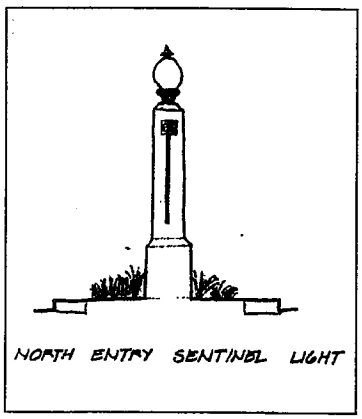
Mural example on side of blank building wall.



Decorative trellis on side of blank building wall.



South entry - lighted sentinels at bridge



North entry – lighted sentinel in median

At the October 9th workshop, the community also voted on what they felt was the "essence of Cotati." Following are the tallied votes:

1. Arts, dance and music (10)
2. Eclectic/quirky (9)
3. Craftsman style (8)
4. Traditional small town (3
5. Native American/Chief Kotate (3)
6. Hip college town (2)

The design team used the information gathered at the first community workshop and prepared preliminary design plans. The community gave further feedback on November 9th, 2000, as shown in this image below:

Community Workshop #2 –Residents select final design images.

The vote tallies for the preferred streetscape image and Charles/Henry intersection design are shown in Part Three, "Alternatives."

ALTERNATIVES
Streetscape Alternatives

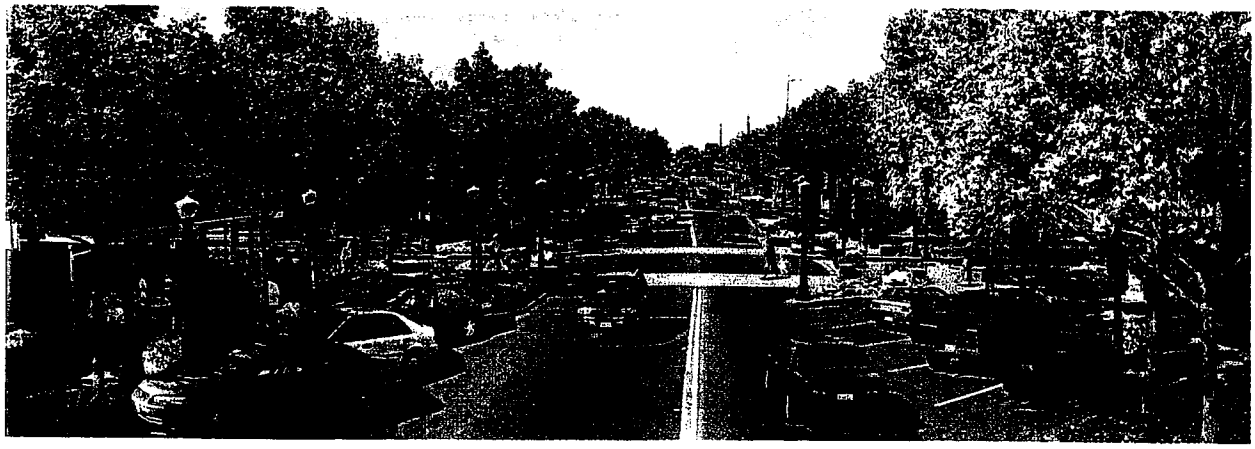
EXISTING CONDITIONS: Existing streetscape in front of Inn of the Beginning - O votes

ALTERNATE 1: Digitally-enhanced image of streetscape improvements (straight curb, gray concrete, acorn lighting, café seating, seating cubes, metal flower pots) - 10 votes

ALTERNATE 2: Digitally-enhanced image of streetscape improvements (saw-tooth curb, colored concrete with tile inlays, acorn lighting, café seating, seating cubes, terra cotta flower pots)- 30 votes

ALTERNATIVES
Intersection Alternatives

EXISTING CONDITIONS: Existing 4-way stop at Charles/Henry intersection



Alternate 1 - TRAFFIC SIGNAL: Digitally-enhanced image of a traffic signal at Charles/Henry intersection - 8 votes

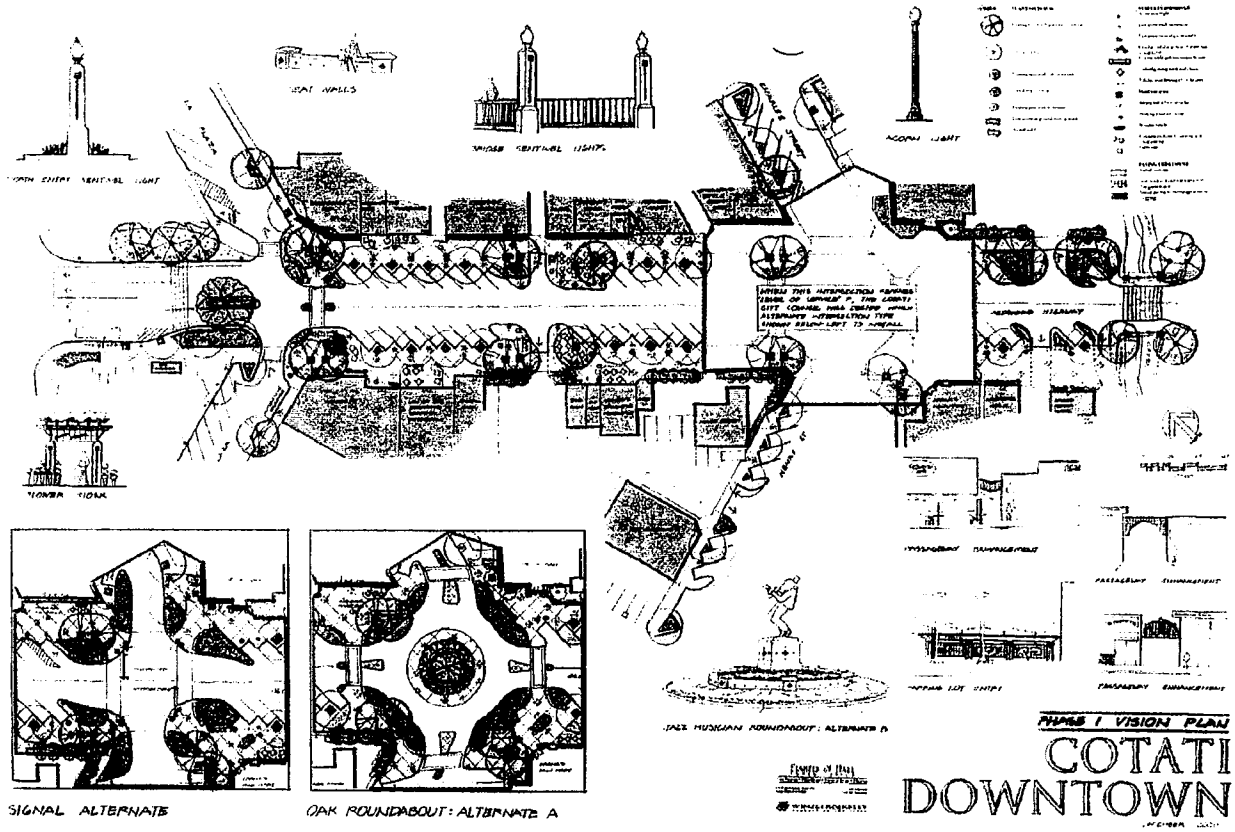
Alternate 2A - OAK TREE ROUNDABOUT: Digitally-enhanced image of roundabout with oak tree - 30 votes

Intersection Alternatives (con'd.)

Alternate 3A - JAZZ MUSICIAN ROUNDABOUT:
Digitally-enhanced image of roundabout with jazz musician sculpture - 3 votes

SELECTED PLAN
Downtown Core Master Plan

The participants in this design process preferred Streetscape Alternate #2 over Streetscape Alternate #1. This preferred option includes colored concrete, terra cotta pots and a saw-tooth curb, which is reflected in the Master Plan below. Because the community is still divided over whether to install a roundabout at the Charles/Henry intersection, and the fact that this intersection is not expected to fail for another 5 years, the Master Plan reflects the various design options for that intersection – traffic signal, oak tree roundabout or jazz musician roundabout – from which the City Council may select when it does fail.



Final Downtown Core Master Plan

DOWNTOWN CORE BASE PROJECT

At the December 6th public hearing, the City Council determined a base project (Alternate 3A) based upon the Downtown Core Master Plan and the funds currently available, which included the following:

- Install the decorative and traffic calming features at the north and south entry points of the downtown.
- Repair uplifted sidewalks – root prune offending trees, add structural soil and tree grates, and replace sidewalks with new, colored concrete.
- Keep the existing 4-way stop at the Charles/Henry intersection until such time as that intersection fails.
- With the help of the community, determine an alternative, less controversial location for a roundabout so that the community can get some experience with it and decide if they would like to eventually build one in the downtown core. The City Council indicated general support for the use of roundabouts in Cotati.

Cost estimates for Alternate 3A Base Project, as well as for the three alternate master plans (Alternate 1 – Traffic Signal, Alternate 2A – Oak tree roundabout and Alternate 2B – Jazz musician roundabout, are included in the Appendix of this report.

Working drawings for the Base Project are currently underway, and construction is scheduled to begin in the year 2001.

MAINTENANCE

Maintenance planning is important to keep the area clean, the plants healthy and to give a strong sense of community ownership to the downtown core. Additional funding needs to be allocated to be able to increase the level of maintenance in the downtown. The following maintenance tasks and their frequencies are recommended:

Street

- Sweep street (weekly or monthly)
- Slurry seal, re-striping, or other (Per City Engineer)

Sidewalk and crosswalks

- Broom or blower clean (weekly)
- Steam clean (Spring and Fall)

Benches

- Paint or stain (annually or every other year)
- Repair and replace portions (every 10 years)

Trash receptacles

- Empty bins (bi-weekly as needed)
- Paint (annually or every other year)

Bike racks

- Paint (annually or every other year)

Signage

- Replace (as needed)

Planters and seat walls

- Repair and replace masonry (every 10 years)

Irrigation

- Check operation of backflow preventer (quarterly)
- Reschedule controllers (biannually)
- Check operation of all valve circuits (monthly or quarterly)
- Clear sprinkler nozzles when necessary (annually in late winter to early spring)
- Repair and replace heads (as necessary)
- Repair and replace valves (as necessary)

MAINTENANCE (con'd.)

Planting

- Replace annual color (Spring and Fall)
- Fertilize (annually, bi-annually, or tri-annually)
- Trim trees (check with City arborist)
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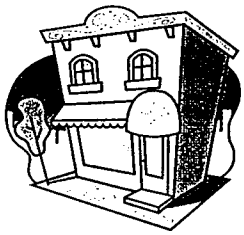
- Weed control (monthly, bi-annually)
- Pest control (as needed)
- Add mulch (annually as needed)
- Litter removal (weekly)
- Replace planting (as necessary)

Hanging Baskets

- Replace plantings in Spring and Fall. Although hanging baskets were one of the most popular streetscape elements during the public hearing process, the maintenance costs in current dollars run $200 per basket per changeover, or $800 per year for each streetlight with two baskets. If the City is able to secure special funding for these costs, baskets can be added to the streetlights at a later date, providing that the streetlights have irrigation lines stubbed out to them during construction.

Appendix



Cotati downtown merchants - *We need your input!*

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❑ Other:	❑ Other:

2. **What are the biggest obstacles you face in operating a business in Downtown Cotati? (check as many as apply)**

❑ Inadequate lighting	❑ Not enough shade
❑ Not enough seating	❑ Noisy trucks
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❑ Not enough landscaping/color	❑ There are no obstacles

3. **Phase 1 of the Cotati Vision Plan could include the following new amenities for downtown. Prioritize the ones that would most improve your business, starting with 1,2,3..... (Also, suggest locations for the new amenities on the attached map.)**

___ More public benches	___ Public art
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___ Pedestrian-scale lights (i.e., acorn lights)	___ Public restrooms (kiosk-type)
___ Street clock	___ Hanging baskets
___ Banners	___ Other:

4. **The existing traffic control at Charles/Henry – a 4-way stop – is projected to fail within the next 5 years. What solution for that intersection would best benefit your business?**

❑ Do nothing	❑ Remove stop signs
❑ Traffic signal at Charles/Henry	❑ Roundabout at Charles/Henry
❑ Other:	❑ Other:

5. **In response to concerns about unsafe traffic speeds and pedestrian safety at Old Redwood Highway and La Plaza, what solution for that intersection would best benefit your business?**

❑ Do nothing	❑ Roundabout at Old Redwood Hwy/La Plaza
❑ Traffic signal:	❑ Other:

6. **Street construction work in the downtown will occur next year. During this process, what construction periods would be the least detrimental to your business? (Fill in all boxes.)**

Time of day/1st choice:	Time of day/2nd choice:
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9. **Is there anything else that you would like to tell us about street improvements for Downtown Cotati?**

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Attend a Community Workshop on:
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Questions? Contact Dale Shaddox, City Manager
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Name (if front page has no name label) _____
Business _____
Address _____
_____
Phone # _____

[See map on opposite side]

DOWNTOWN CORE BASE PROJECT

At the December 6th public hearing, the City Council determined a base project (Alternate 3A) based upon the Downtown Core Master Plan and the funds currently available, which included the following:

- Install the decorative and traffic calming features at the north and south entry points of the downtown.
- Repair uplifted sidewalks – root prune offending trees, add structural soil and tree grates, and replace sidewalks with new, colored concrete.
- Keep the existing 4-way stop at the Charles/Henry intersection until such time as that intersection fails.
- With the help of the community, determine an alternative, less controversial location for a roundabout so that the community can get some experience with it and decide if they would like to eventually build one in the downtown core. The City Council indicated general support for the use of roundabouts in Cotati.

Cost estimates for Alternate 3A Base Project, as well as for the three alternate master plans (Alternate 1 – Traffic Signal, Alternate 2A – Oak tree roundabout and Alternate 2B – Jazz musician roundabout, are included in the Appendix of this report.

Working drawings for the Base Project are currently underway, and construction is scheduled to begin in the year 2001.

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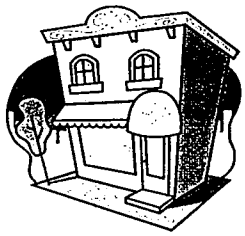

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[See map on opposite side]

Walkable Cotati
Phase 1 Traffic Analysis

for the
City of Cotati

January 2001

WHITLOCK & WEINBERGER TRANSPORTATION INC

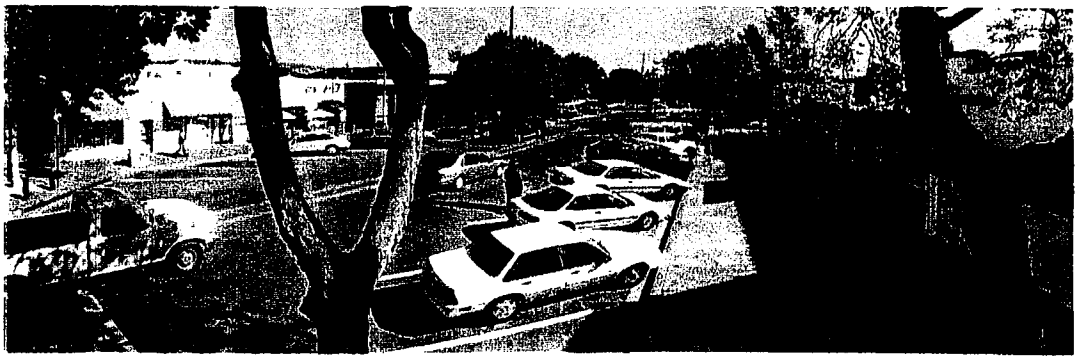
Downtown Cotati: Property Owner's Survey No. 2

Options for Streetscape Design

Due November 27, 2000

Preferred option (pick one)

Existing Streetscape



☐

Alternate No. 1

☐

Alternate No. 2

☐

Note: Your identity will be kept confidential

FISHER & HALL
URBAN DESIGN

Town Planning • Plaza Design • Ecological Design • Education

618 Fourth Street, Suite 203
Santa Rosa, CA 95404

707. 544.4910
FAX 707. 544.4944

Downtown Cotati: Property Owner's Survey No. 2

Options for Charles/Henry Intersection

Due November 27, 2000

Preferred option (pick one)

☐

Signalized Intersection

☐

Roundabout with Oak Tree

☐

Roundabout with Jazz Musician Sculpture

Your identity will be kept confidential

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Introduction

This report is a compilation of written reports and presentation slides which presents an analysis of design alternatives and traffic impacts that would be expected with the installation of improvements on Old Redwood Highway between Henry/Charles Streets and La Plaza South. These improvements were recommended as part of the Phase 1 implementation plan in *City of Cotati Vision Plan (Walkable Cotati)*, April 2000.

Existing Conditions

Old Redwood Highway is a two-lane facility south of La Plaza South with 45 degree angled parking on both sides of the street. The west side of the street was previously striped with parallel parking, but was recently converted to the diagonal alignment. There is a 4-foot striped median and 14-foot travel lanes in both directions. The intersection of Redwood Highway/Henry Street-Charles Street is controlled by all-way stop controls while Old Redwood Highway/La Plaza South is stop-controlled on the eastbound approach of La Plaza South. Approximately 150 feet separate the intersection of Old Redwood Highway/La Plaza South and Old Redwood Highway/East Cotati Avenue. The East Cotati Avenue intersection is controlled by a traffic signal.

The existing street alignment, striping and other geometric conditions are shown in Figures 1A and 1B (See Powerpoint slides).

Weekday a.m. and p.m. peak hour turning movements were collected August 16 and 17, 2000, for the intersections of Old Redwood Highway/Henry Street-Charles Street and Old Redwood Highway/La Plaza South. Currently the traffic volume on Old Redwood Highway between Henry Street-Charles Street and La Plaza South is approximately 900 vehicles per hour during the p.m. peak period and 10,100 vehicles per day with approximately 1,250 vehicles entering the intersection of Old Redwood Highway/Henry Street-Charles Street and 870 vehicles entering Old Redwood Highway/La Plaza South during the p.m. peak hour.

Intersection operating conditions were evaluated by determining the intersection's Level of Service. Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. The LOS designation is generally accompanied by a unit of measure which indicates a level of delay. Methodologies from the *Highway Capacity Manual*, Special Report No. 209, Transportation Research Board, 1997, were used to determine intersection level of service. The City of Cotati's General Plan Circulation Element allows a maximum LOS D at intersections. A complete description of the methodology and the Level of Service criteria is provided in Appendix A.

Based upon the observed traffic conditions and Level of Service analysis using the existing traffic volumes, Old Redwood Highway between Henry Street-Charles Street is currently operating at LOS D during the p.m. peak hour. The northbound approach experiences the most significant delay and queuing during the p.m. peak hour with queues extending several hundred feet. The intersection of Old Redwood Highway/La Plaza South is operating at LOS A with minor delay to the side street movement which has very low traffic volumes. A summary of the Level of Service calculations is contained in Table 1 and copies are provided in Appendix B.

The adjacent signalized intersection of Old Redwood Highway/West Sierra Avenue-East Cotati Avenue currently operates at LOS C during the PM peak hour and has observed vehicle backups on the south leg of the intersections of 23 vehicles (11 to 12 vehicles in each lane). The vehicle queue, or backup, frequently

extends into the La Plaza South intersection. A preliminary evaluation was made of the performance of the signalized intersection and several minor improvements were tested to reduce vehicle backups. There was no easy solution which would improve this condition without increasing delay and congestion on other approaches to the intersection.

Future Traffic Conditions

Future p.m. peak hour traffic volumes were obtained from the *Citywide Traffic Analysis for the General Plan Update*, Whitlock & Weinberger Transportation, Inc., 1996. Future traffic volumes which were based on a 20-year horizon and buildout of the City's current General Plan were only available for the intersection of Old Redwood Highway/East Cotati Avenue, however, these projections were extrapolated to the two study intersections. These projections were based on the assumption that traffic on Old Redwood Highway will increase to approximately 1,370 vehicles per hour during the p.m. peak period and 15,300 vehicles per day, with approximately 1,820 vehicles entering the intersection of Old Redwood Highway/ Henry Street-Charles Street and 1,400 vehicles entering Old Redwood Highway/La Plaza South during the p.m. peak hour. These projections represent an approximate 50 percent increase in traffic over existing levels.

Based on the future traffic projections, Old Redwood Highway between Henry Street-Charles Street is expected to operate at LOS F during the p.m. peak hour. The intersection of Old Redwood Highway/La Plaza South would be expected to continue operating at LOS A with delay increased to the LOS C range for the side street traffic. A summary of the Level of Service calculations is contained in Table 1 and copies are provided in Appendix B.

Table 1
Summary of Intersection Level of Service Calculations

Intersection / *Approach*	Existing Conditions				Future*	
	A.M. Peak		P.M. Peak		P.M. Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1 Old Redwood Highway/Henry St.-Charles St.						
Existing 4-way Stop	7.7	B	22.6	D	75.0	F
Roundabout	*0.6*	*A*	*0.7*	*A*	*1.3*	*A*
2 Old Redwood Highway/La Plaza South						
Existing Intersection Overall	0.3	A	0.3	A	0.6	A
Existing La Plaza Approach	4.2	A	4.9	A	10.8	C
Roundabout	*0.1*	*A*	*0.1*	*A*	*0.3*	*A*

Notes: Delay = average delay in seconds per vehicle
LOS = Level of Service
* = Future represents General Plan Buildout Conditions

Design Options

The following three options were examined.

Option 1 - The installation of one roundabout at either Old Redwood Highway/Henry Street-Charles Street or Old Redwood Highway/La Plaza South.

Option 2 - The installation of two roundabouts at Old Redwood Highway/Henry Street-Charles Street and Old Redwood Highway/La Plaza South.

Option 3 - No roundabouts with street narrowing and medians on Old Redwood Highway between La Plaza South and Henry Street-Charles Street.

Characteristics of Modern Roundabouts

In March the Federal Highway Administration (FHWA) published *Roundabouts: An Informational Guide*, which provides design guidelines as well as discussions of the operational impacts of roundabouts. Following is a synthesis of the pros and cons typically associated with modern roundabouts based on discussion in the FHWA guide.

Pros

- Vehicular Safety – The conversion of existing intersections to roundabout-controlled intersections has been found by the FHWA to result in a 37 percent reduction in total traffic collisions, with a 51 percent decrease in *injury* collisions.

- Pedestrian Safety – The conversion of existing intersections to roundabout-controlled intersections has been found to decrease the number and severity of pedestrian accidents by as much as 73 percent according to one Dutch study of 181 intersections.

- Capacity and Delay Times – For a given approach width, roundabouts are capable of handling a higher volume of vehicles than other types of intersection controls. At many intersections, and in particular those that are all-way stop-controlled, roundabouts will have lower average vehicle delay and better Levels of Service.

- U-turns – The ability to make U-turns is relatively easy and safe at roundabout-controlled intersections. This can facilitate parking circulation, and can improve access from driveways along adjacent street segments where left turns are difficult or prohibited.

- Fuel Consumption, Air Quality, and Energy – By reducing the amount of rapid acceleration and deceleration associated with other types of intersection controls, roundabouts typically cause vehicles to consume less fuel and correspondingly lead to lower vehicle emissions. Roundabouts also use no electricity other than lighting, and have a longer expected service life than signalized intersections.

- Aesthetics – Roundabouts provide an excellent opportunity for landscaping and/or public art.

- Traffic Calming – Roundabouts require vehicles to travel at lower speeds and are particularly suitable for traffic calming when used with other treatments such as road narrowing, etc.

Cons

- Safety for Visually Impaired Persons – Roundabouts do not have the same audible queues as used by visually-impaired pedestrians to cross stop-controlled and signalized intersections, and may require special design treatments to accommodate these users.

- Initial Confusion and Driver Unfamiliarity – Drivers who are unfamiliar with roundabouts may become timid or uncertain upon approach to the intersection, and may violate yield controls or stop at inappropriate times, potentially resulting in minor accidents.

Pro/Con

- Public Acceptance of Roundabouts – In the United States, it has been found that many communities experience public opposition to roundabouts in the early planning stages. After construction and some time to acclimate, however, public opinion typically shifts in a much more positive direction.

- Bicyclist Safety – Studies of bicycle safety at roundabouts have yielded mixed results. It appears that an increase in bicycle accidents is associated with some roundabouts, although more so at higher-speed, multi-lane intersections than under lower-speed downtown environments. The Urban Compact Roundabout designs considered for the Cotati project are intended to be pedestrian and bicycle friendly according to the FHWA guidelines. Bicyclists would, however, expect to be safely accommodated in the lower-speed, pedestrian-oriented downtown Cotati environment.

Roundabout Operations

The two study intersections were evaluated assuming a roundabout for traffic control. The SIDRA software, which is based on the *Highway Capacity Manual* methodology, was used. With a roundabout, both intersections of Old Redwood Highway/Henry Street-Charles Street and Old Redwood Highway/La Plaza South would be expected to operate at LOS A both now and under future conditions. Also, minimal queuing would be expected to occur at either intersection, however, the northbound queuing at the intersection of Old Redwood Highway/East Cotati Avenue would be expected to extend into the roundabout at Old Redwood Highway/La Plaza South. This queuing should not impact flow of traffic in the southbound direction. A summary of the roundabout traffic operation is included in Table 1 and copies of the calculations are provided in Appendix B.

Median Design Alternatives.

Several design alternatives were considered that will enhance the center area on Old Redwood Highway that has recently been delineated with two double yellow center lines. The double-double yellow center line prohibits U-turns and left turns as defined by the *California Vehicle Code*. The area between the double yellow lines creates a 4-foot wide median island area. Several alternatives were considered that would enhance and reinforce this configuration.

A raised concrete median island was considered. The island would be constructed using a 4-inch high mountable curb with a 3-foot wide center of brick or paving stones. There would be a break in the median island at the two existing mid-block driveways which would provide a suitable opening to permit vehicle movements. In the event that emergency vehicles needed to traverse Old Redwood Highway at a time when

congestion blocked the street, the emergency vehicles would have to either straddle or travel on the wrong side of the median island. If police or fire trucks were responding to a call on Old Redwood Highway that required them to block the street, standard passenger vehicles would not have the ability to use the opposing lane to proceed.

An alternative design is the application of a colored pavement treatment in the area between the double yellow center lines. This alternative can be applied directly to the existing asphalt and comes in a range of colors such as blue, green, and red. The colored pavement treatment does not create a physical barrier to emergency vehicles or a tripping hazard to pedestrians making random street crossings outside of designated crosswalks. The pavement treatment could easily be modified or removed and would not restrict future designs. An example of this type of treatment has recently been used to enhance bicycle lanes on Lakeville Street in Petaluma.

Because of the ease installation, future design flexibility, and lack of adverse impacts on emergency vehicles, parking maneuvers, and pedestrian movements the applied pavement treatment is considered superior and is the alternative recommended for each of the three design options.

Recommendation:	**The center 4-foot median should be flush with the existing pavement and be constructed with a colored traversable asphalt or concrete material and could be stamped with a paver or cobblestone pattern. The existing double-double yellow striping pattern should remain to restrict U-turns and left-turns.**

Review and Analysis

Preliminary Roundabout Design

A design evaluation discussion for both intersections is included in Appendix C. Preliminary design evaluations suggest that a 90-foot small-urban roundabout would work well in either location. The preliminary roundabout design is shown in Figure 2A (See Powerpoint slides) for Old Redwood Highway/La Plaza South and Figure 2B (See Powerpoint slides) for Old Redwood Highway/Henry Street-Charles Street. These figures show the roundabout in relationship to other important features such as buildings, crosswalks, parking and sidewalks.

Finding:	**Preliminary design evaluations suggest that a 90-foot small-urban roundabout would work well in either location and both would operate at LOS A.**

The proposed roundabouts at both locations were tested to determine the adequacy to accommodate truck traffic. The designs proposed can accommodate the SU- class design vehicle within the paved roadway area of the roundabout. The SU-class Design Vehicle is a single unit truck and includes such vehicles as fire engines, and refuse collection and delivery trucks. The larger WB-50 design vehicle is a large 60-foot single trailer truck combination. The WB-50 design vehicle places the highest design demands upon the roundabout and smaller more maneuverable vehicles can be accommodated easily. Figure 3 (See Powerpoint slides) shows the truck turn paths for the La Plaza South and Henry Street-Charles Street intersections with Old Redwood Highway. The potential does exist for the occasional interstate commerce class truck. These trucks are the largest vehicles which can be anticipated to use the Old Redwood Highway corridor. This class of vehicle was tested to insure that the design roundabout will accommodate this class of vehicle. The class of interstate truck

is not anticipated nor encouraged to use Henry and Charles Streets. Figure 4 (See Powerpoint slides) shows the truck turn path of this class of vehicle at the roundabout at Old Redwood Highway and Henry-Charles Streets.

The installation of roundabouts at either location will require the relocation of existing crosswalks to 20 feet back from the intersection. This will result in the loss of several parking spaces at each approach to either intersection. The removal of the existing mid-block crossing on Old Redwood Highway was considered as a method of recovering several on-street parking spaces. Observations suggest that pedestrians cross Old Redwood Highway throughout this section of street and that pedestrians are choosing the most direct path. In addition, the installation of a median refuge island will encourage random crossings. However, the City is currently in the process of creating a public parking lot behind the buildings on the northwest side of the street. Pedestrians walking from these new parking spaces would be lead directly to this mid-block crossing. Its removal is therefor not recommended.

Finding:	**Roundabouts at either study intersection will result in the loss of several parking spaces on each approach.**

Option 1 - Install One Roundabout

Option 1 explores the potential to install one roundabout at either Old Redwood Highway/La Plaza South or Old Redwood Highway/Henry Street-Charles Street. The following issues were considered in determining the most appropriate location for one roundabout.

- Roundabouts are expected to operate at LOS A now and into the future at both locations.
- Old Redwood Highway/Henry Street-Charles Street experiences significant delay due to the all-way stop.
- Old Redwood Highway/La Plaza South has minimal traffic delay.
- A roundabout at Old Redwood Highway/La Plaza South was envisioned as part of a larger system which includes the closer of the Old Redwood Highway/East Cotati Avenue intersection.
- A roundabout at either location would facilitate parking maneuvers in the downtown core.
- A roundabout at either location would act as a gateway and traffic calming device.

Given that the intersection of Old Redwood Highway/Henry Street-Charles Street would benefit most from an operational standpoint, it is recommended that this be the location for the single roundabout.

Recommendation:	**If one roundabout is to be installed, the location should be the intersection of Old Redwood Highway/Henry Street-Charles Street given that it would benefit traffic operations more significantly than La Plaza South.**

Option 2 - Install Two Roundabouts

Option 2 explored the opportunity to develop two roundabouts, one at Old Redwood Highway/Henry Street-Charles Street and one at Old Redwood Highway/La Plaza South. The two roundabout alternative will improve access to parking on Old Redwood Highway between La Plaza South and Henry-Charles Streets. Motorists looking for parking spaces and finding none on their side of the street can easily use the roundabout to make a U-turn and access available parking on the opposite side.

Although vehicle backups into the roundabout from the northbound approach to Old Redwood Highway/ East Cotati Avenue will occur during peak periods, these backups will not impair southbound flows. Traffic flows into the roundabout from La Plaza South onto Old Redwood Highway northbound are light (5 vehicles in p.m. peak hour) and only minor impacts are to be expected.

Option 3 - Keep Existing Traffic Control

Option 3 is based on the assumption that current traffic controls remain with only the addition of the median treatment. Under these conditions, travel speeds would be expected to decrease, however, the existing LOS D conditions at Old Redwood Highway/Henry Street-Charles Street are expected to remain and deteriorate into the future.

Comparison of Options

Based on the evaluation presented in this report, a comparison was made of the three design options. A summary of the comparison is shown in Tables 2 which presents operational areas on which the three options might have an impact. The ability of each design option to provide benefit in each of these areas was termed as "best," "better," "good," or "no change."

Table 2
Design Option Comparison

Improvement Areas	One Roundabout	Two Roundabouts	Current Control
Delay/LOS	Best	Best*/No**	No change
Parking Maneuvers	Good	Best	No change
Vehicular Safety	Better	Best	No change
Pedestrian/Bike Safety	Better	Best	No change
Air Quality	Good	Good	No change
Aesthetics	Better	Best	No change
Travel Speed	Better	Best	Good

* - Best for the intersection of ORH/Henry Street-Charles Street
**- No change for the intersection of ORH/La Plaza South

Finding:	**Not considering the cost of each option, Design Option 3, Build Two Roundabouts, would result in the most improvement to traffic operation in the downtown core. Although the roundabout at Old Redwood/La Plaza South would not have any benefit from a Level of Service or delay standpoint, it would benefit parking maneuvers and have a traffic calming affect at this gateway to the core area.**

Also, a comparison was made between intersection control for the Old Redwood Highway/Henry Street-Charles Street intersection. Options included the existing 4-way stop, a roundabout and a traffic signal. A summary

of the intersection levels of service are shown in Table 3 and a comparison matrix is shown in Table 4.

Table 3
Summary of Intersection Level of Service
With Traffic Control Options

Intersection *Approach*	Existing Conditions				Future*	
	A.M. Peak		P.M. Peak		P.M. Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1 Old Redwood Highway/Henry St.-Charles St.						
Existing 4-way Stop	7.7	B	22.6	D	75.0	F
Roundabout	*0.6*	*A*	*0.7*	*A*	*1.3*	*A*
Traffic Signal	*0.1*	*A*	*5.6*	*B*	*11.3*	*B*

Table 4
Design Option Comparison

Improvement Areas	Existing 4-way stop	Roundabout	Traffic Signal
Delay/LOS	LOS D-F	LOS A	LOS B
Parking Maneuvers	Least gaps	More gaps	Most gaps
Vehicular Safety	No change	Best	No significant change
Pedestrian/Bike Safety	No change	Better	No significant change
Air Quality	Worst	Best	Better
Aesthetics	No change	Best	?????
Travel Speed	No change	Slower	Increase
Corridor Travel Time	No change	Decrease	Better

Other Safety Issue

Currently, there are perpendicular parking spaces on Old Redwood Highway in front of Frank's Mini Mart, south of Henry-Charles Streets. Given that these spaces require vehicles to back into both lanes of traffic when this traffic is leaving toward the north, the perpendicular configuration of the spaces present a public safety issue.

Recommendation: The perpendicular parking spaces on Old Redwood Highway in front of Frank's Mini Mart should be converted from 90-degree to 45-degree in order to improve public safety.

Presentation and Response to Comments

Presentation slides used for the various public meetings in Cotati are shown in Appendix D along with response to various questions which were posed by the City Council.

Study Participants

Project Manager:	Stephen J. Weinberger, P.E.
Project Engineer:	Allan Tilton
Design:	Frank Penry
Planner:	Zack Matley
Administration:	Debbie Dunn
Report Review:	Dalene J. Whitlock, P.E., P.T.O.E.
Traffic Counts:	Amy Cordtz

References

Roundabouts: An Informational Guide, Federal Highway Administration
Walkable Cotati Vision Report, Walkable Communities, Inc.
Highway Capacity Manual, Special Report No. 209, Transportation Research Board, 1994
Highway Design Manual, 4th Edition, California Department of Transportation *Traffic Manual*, California Department of Transportation
Trip Generation, 6th Edition, Institute of Transportation Engineers,

Design Option 1 - Install 1 roundabout

I recommend

ORH/Henry-Charles Streets

- C.S. At both locations:
  - A roundabout at either location would facilitate parking maneuvers
  - A roundabout at either location would act as a gateway and traffic calming device
  - ORH/Henry Street-Charles Street experiences significant delay
  - Old Redwood Highway/La Plaza South has minimal traffic delay
  - A roundabout at ORH/La Plaza South was envisioned as part of a larger system

Existing Conditions

AM Peak Hour - Existing Conditions
Cotati Phase I Downtown Improvements Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 Old Redwood Highway/Henry St-Charles St

Cycle (sec):	1	Critical Vol./Cap. (X):	0.655
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	7.7
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module: >> Count Date: 17 Aug 2000 << 8:15 - 9:15 am												
Base Vol:	13	280	59	11	245	8	16	12	16	88	18	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	280	59	11	245	8	16	12	16	88	18	13
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	13	280	59	11	245	8	16	12	16	88	18	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.96	0.96	0.96	0.79	0.79	0.79	0.76	0.76	0.76
PHF Volume:	13	290	61	11	256	8	20	15	20	115	24	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	13	290	61	11	256	8	20	15	20	115	24	17
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	13	290	61	11	256	8	20	15	20	115	24	17
Saturation Flow Module:												
Sat/Lane:	645	645	645	640	640	640	84	84	84	277	277	277
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.03	0.80	0.17	0.04	0.93	0.03	0.37	0.27	0.36	0.74	0.15	0.11
Final Sat.:	23	514	108	26	596	19	31	23	31	204	43	30
Capacity Analysis Module:												
Vol/Sat:	0.56	0.56	0.56	0.43	0.43	0.43	0.65	0.65	0.65	0.56	0.56	0.56
Crit Moves:			****			****			****		****	
ApproachV/S:		0.56			0.43			0.65			0.56	
Delay/Veh:	8.5	8.5	8.5	5.1	5.1	5.1	12.0	12.0	12.0	8.5	8.5	8.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.5	8.5	8.5	5.1	5.1	5.1	12.0	12.0	12.0	8.5	8.5	8.5
LOS by Move:	B	B	B	B	B	B	C	C	C	B	B	B
ApproachDel:		8.5			5.1			12.0			8.5	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.5			5.1			12.0			8.5	
LOS by Appr:		B			B			C			B	

PM Peak Hour - Existing Conditions
Cotati Phase I Downtown Improvements Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 Old Redwood Highway/Henry St-Charles St

Cycle (sec):	1	Critical Vol./Cap. (X):	0.933
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	22.6
Optimal Cycle:	0	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module: >> Count Date: 16 Aug 2000 << 4:00 - 5:00 pm												
Base Vol:	13	502	153	25	350	36	19	21	21	71	16	27
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	502	153	25	350	36	19	21	21	71	16	27
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.95	0.95	0.95	0.85	0.85	0.85	0.84	0.84	0.84
PHF Volume:	14	553	169	26	368	38	22	25	25	85	19	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	553	169	26	368	38	22	25	25	85	19	32
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	14	553	169	26	368	38	22	25	25	85	19	32
Saturation Flow Module:												
Sat/Lane:	789	789	789	769	769	769	115	115	115	242	242	242
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.02	0.75	0.23	0.06	0.85	0.09	0.30	0.35	0.35	0.62	0.14	0.24
Final Sat.:	15	593	181	46	655	68	35	40	40	151	34	57
Capacity Analysis Module:												
Vol/Sat:	0.93	0.93	0.93	0.56	0.56	0.56	0.63	0.63	0.63	0.56	0.56	0.56
Crit Moves:			****			****	****					****
ApproachV/S:		0.93			0.56			0.63			0.56	
Delay/Veh:	34.6	34.6	34.6	8.5	8.5	8.5	10.8	10.8	10.8	8.5	8.5	8.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.6	34.6	34.6	8.5	8.5	8.5	10.8	10.8	10.8	8.5	8.5	8.5
LOS by Move:	E	E	E	B	B	B	C	C	C	B	B	B
ApproachDel:		34.6			8.5			10.8			8.5	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		34.6			8.5			10.8			8.5	
LOS by Appr:		E			B			C			B	

AM Peak Hour - Existing Conditions
Cotati Phase I Downtown Improvements Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Old Redwood Highway/La Plaza South

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1	0	0 1	0	0	0 0	1!	0	0 0	1!	0 0
Volume Module: >> Count Date: 17 Aug 2000 << 7:45 - 8:45 am												
Base Vol:	0	264	11	15	254	0	2	0	12	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	264	11	15	254	0	2	0	12	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	264	11	15	254	0	2	0	12	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.97	0.97	0.97	0.50	0.50	0.50	1.00	1.00	1.00
PHF Volume:	0	307	13	15	261	0	4	0	24	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	307	13	15	261	0	4	0	24	0	0	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	307	13	17	261	0	4	0	26	0	0	0
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	3.4	xxxx	2.6	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	6.5	xxxx	5.5	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	320	xxxx	xxxxx	590	xxxx	261	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	1207	xxxx	xxxxx	482	xxxx	1022	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	0.98	xxxx	1.00	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	1207	xxxx	xxxxx	474	xxxx	1022	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	3.0	xxxx	xxxxx	7.7	xxxx	3.6	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	877	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	4.2	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	0.0			0.2			4.2			0.0		

PM Peak Hour - Existing Conditions
Cotati Phase I Downtown Improvements Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Old Redwood Highway/La Plaza South

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1	0	0 1	0	0	0 0	1!	0	0 0	1!	0 0
Volume Module: >> Count Date: 16 Aug 2000 << 4:00 - 5:00 pm												
Base Vol:	0	454	34	15	334	0	5	0	28	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	454	34	15	334	0	5	0	28	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	454	34	15	334	0	5	0	28	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	454	34	15	334	0	5	0	28	0	0	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	454	34	17	334	0	6	0	31	0	0	0
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	3.4	xxxx	2.6	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	6.5	xxxx	5.5	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	488	xxxx	xxxxx	820	xxxx	334	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	1004	xxxx	xxxxx	355	xxxx	938	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	0.98	xxxx	1.00	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	1004	xxxx	xxxxx	348	xxxx	938	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	3.6	xxxx	xxxxx	10.5	xxxx	4.0	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	746	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	4.9	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	0.0			0.2			4.9			0.0		

AM Peak Hour - Existing Conditions
Cotati Phase I Downtown Improvements Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #3 Old Redwood Highway/E Cotati-W Sierra

Cycle (sec):	100	Critical Vol./Cap. (X):	0.651
Loss Time (sec):	8 (Y+R = 4 sec)	Average Delay (sec/veh):	19.3
Optimal Cycle:	43	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1	1 0
Volume Module: >> Count Date: 17 Aug 2000 << 7:30 - 8:30 am												
Base Vol:	9	269	3	323	249	36	77	109	8	27	212	336
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	269	3	323	249	36	77	109	8	27	212	336
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	269	3	323	249	36	77	109	8	27	212	336
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.82	0.82	0.82	0.72	0.72	0.72	0.86	0.86	0.86
PHF Volume:	10	291	3	392	303	44	106	151	11	31	246	390
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	291	3	392	303	44	106	151	11	31	246	390
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00
Final Vol.:	10	306	3	392	318	46	106	158	12	31	246	390
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	0.98	0.98	0.95	0.99	0.99	0.95	1.00	0.85
Lanes:	1.00	1.98	0.02	1.00	1.75	0.25	1.00	1.86	0.14	1.00	1.00	1.00
Final Sat.:	1805	3763	37	1805	3253	471	1805	3496	266	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.08	0.08	0.22	0.10	0.10	0.06	0.05	0.05	0.02	0.13	0.24
Crit Moves:		****		****			****					****
Green/Cycle:	0.02	0.12	0.12	0.33	0.43	0.43	0.09	0.33	0.33	0.13	0.37	0.37
Volume/Cap:	0.23	0.65	0.65	0.65	0.23	0.23	0.65	0.14	0.14	0.14	0.35	0.65
Delay/Veh:	31.3	29.1	29.1	20.1	11.5	11.5	34.4	15.0	15.0	25.1	14.7	17.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	31.3	29.1	29.1	20.1	11.5	11.5	34.4	15.0	15.0	25.1	14.7	17.9
DesignQueue:	1	15	0	15	10	1	5	6	0	2	9	14

PM Peak Hour - Existing Conditions
Cotati Phase I Downtown Improvements Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #3 Old Redwood Highway/E Cotati-W Sierra

Cycle (sec):	100	Critical Vol./Cap. (X):	0.697
Loss Time (sec):	8 (Y+R = 4 sec)	Average Delay (sec/veh):	19.5
Optimal Cycle:	48	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1	1 0
Volume Module: >> Count Date: 16 Aug 2000 << 4:30 - 5:30 pm												
Base Vol:	5	436	6	373	348	52	73	226	6	29	158	335
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	436	6	373	348	52	73	226	6	29	158	335
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.87	0.87	0.87	0.94	0.94	0.94	0.91	0.91	0.91
PHF Volume:	6	480	7	427	398	59	78	240	6	32	173	367
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	480	7	427	398	59	78	240	6	32	173	367
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00
Final Vol.:	6	504	7	427	418	62	78	252	7	32	173	367
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	0.98	0.98	0.95	1.00	1.00	0.95	1.00	0.85
Lanes:	1.00	1.97	0.03	1.00	1.74	0.26	1.00	1.95	0.05	1.00	1.00	1.00
Final Sat.:	1805	3748	52	1805	3243	481	1805	3697	103	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.13	0.13	0.24	0.13	0.13	0.04	0.07	0.07	0.02	0.09	0.23
Crit Moves:		****		****			****					****
Green/Cycle:	0.01	0.19	0.19	0.34	0.52	0.52	0.06	0.31	0.31	0.08	0.33	0.33
Volume/Cap:	0.25	0.70	0.70	0.70	0.25	0.25	0.70	0.22	0.22	0.22	0.28	0.70
Delay/Veh:	32.6	26.3	26.3	20.9	8.6	8.6	41.0	16.6	16.6	28.0	16.2	20.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.6	26.3	26.3	20.9	8.6	8.6	41.0	16.6	16.6	28.0	16.2	20.9
DesignQueue:	0	23	0	17	12	2	4	10	0	2	7	14

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (ft)	Shrt Lane (ft)
West: Eastbound Henry St												
1 LTR	18	14	18	50	6				0.055	2.0	9	
	18	14	18	50	6				0.055	2.0	9	
South: Northbound ORH												
1 LTR	15	311	65	391	2				0.210	0.1	33	
	15	311	65	391	2				0.210	0.1	33	
East: Westbound Charles St.												
1 LTR	98	21	15	134	2				0.137	1.9	22	
	98	21	15	134	2				0.137	1.9	22	
North: Southbound ORH												
1 LTR	13	272	10	295	2				0.200	0.5	32	
	13	272	10	295	2				0.200	0.5	32	

ALL VEHICLES	Tot Arv.	% HV	Max X	Aver. Delay	Max Queue
	870	2	0.210	0.6	33

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue.

Old Redwood Highway/Henry St-Charles St * CHA-1 *
AM Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastbound Henry St						
12	LTR	50	914	0.055	2.0	A
		50	914	0.055	2.0	A
South: Northbound ORH						
32	LTR	391	1859	0.210*	0.1	A
		391	1859	0.210	0.1	A
East: Westbound Charles St.						
22	LTR	134	981	0.137	1.9	A
		134	981	0.137	1.9	A
North: Southbound ORH						
42	LTR	295	1476	0.200	0.5	A
		295	1476	0.200	0.5	A
ALL VEHICLES:		870	5230	0.210	0.6	A
INTERSECTION:		870	5230	0.210	0.6	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (ft)	Shrt Lane (ft)
West: Eastbound Henry St											
1 LTR	22	24	24	70	4			0.082	2.8	13	
	22	24	24	70	4			0.082	2.8	13	
South: Northbound ORH											
1 LTR	15	558	170	743	2			0.410	0.3	77	
	15	558	170	743	2			0.410	0.3	77	
East: Westbound Charles St.											
1 LTR	79	19	31	129	2			0.162	3.8	28	
	79	19	31	129	2			0.162	3.8	28	
North: Southbound ORH											
1 LTR	27	389	40	456	2			0.267	0.3	44	
	27	389	40	456	2			0.267	0.3	44	
ALL VEHICLES				Tot Arv. 1398	% HV 2			Max X 0.410	Aver. Delay 0.7	Max Queue 77	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue.

Old Redwood Highway/Henry St-Charles St * CHP-1 *
PM Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastbound Henry St						
12	LTR	70	851	0.082	2.8	A
		70	851	0.082	2.8	A
South: Northbound ORH						
32	LTR	743	1811	0.410*	0.3	A
		743	1811	0.410	0.3	A
East: Westbound Charles St.						
22	LTR	129	794	0.162	3.8	B
		129	794	0.162	3.8	B
North: Southbound ORH						
42	LTR	456	1709	0.267	0.3	A
		456	1709	0.267	0.3	A
ALL VEHICLES:		1398	5165	0.410	0.7	A
INTERSECTION:		1398	5165	0.410	0.7	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (ft)	Shrt Lane (ft)
West: Eastbound La Plaza South											
1 LTR	3	2	14	19	16			0.021	1.4	3	
	3	2	14	19	16			0.021	1.4	3	
South: Northbound ORH											
1 TR	0	293	13	306	2			0.164	0.0	24	
	0	293	13	306	2			0.164	0.0	24	
North: Southbound ORH											
1 LT	17	283	0	300	2			0.161	0.0	0	
	17	283	0	300	2			0.161	0.0	0	
ALL VEHICLES				Tot Arv. 625	% HV 3			Max X 0.164	Aver. Delay 0.1	Max Queue 24	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue.

Old Redwood Highway/La Plaza South * LPA-1 *
AM Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastbound La Plaza South						
12	LTR	19	895	0.021	1.4	A
		19	895	0.021	1.4	A
South: Northbound ORH						
32	TR	306	1863	0.164*	0.0	B
		306	1863	0.164	0.0	B
North: Southbound ORH						
42	LT	300	1867	0.161	0.0	A
		300	1867	0.161	0.0	A
ALL VEHICLES:		625	4626	0.164	0.1	A
INTERSECTION:		625	4626	0.164	0.1	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (ft)	Shrt Lane (ft)
West: Eastbound La Plaza South											
1 LTR	6	2	31	39	8			0.043	2.0	7	
	6	2	31	39	8			0.043	2.0	7	
South: Northbound ORH											
1 TR	0	504	38	542	2			0.290	0.1	47	
	0	504	38	542	2			0.290	0.1	47	
North: Southbound ORH											
1 LT	17	371	0	388	2			0.208	0.0	0	
	17	371	0	388	2			0.208	0.0	0	
ALL VEHICLES				Tot Arv. 969	% HV 2			Max X 0.290	Aver. Delay 0.1	Max Queue 47	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue.

Old Redwood Highway/La Plaza South * LPP-1 *
PM Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastbound La Plaza South						
12	LTR	39	898	0.043	2.0	A
		39	898	0.043	2.0	A
South: Northbound ORH						
32	TR	542	1868	0.290*	0.1	B
		542	1868	0.290	0.1	B
North: Southbound ORH						
42	LT	388	1870	0.207	0.0	A
		388	1870	0.207	0.0	A
ALL VEHICLES:		969	4635	0.290	0.1	A
INTERSECTION:		969	4635	0.290	0.1	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Future Conditions

PM Peak Hour - Future Conditions
Cotati Transit Village Specific Plan Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 Old Redwood Highway/Henry St-Charles St

Cycle (sec): 1 Critical Vol./Cap. (X): 1.245
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 75.0
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module: projected future												
Base Vol:	20	603	232	44	610	63	23	32	32	108	24	32
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	603	232	44	610	63	23	32	32	108	24	32
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	22	670	258	49	678	70	26	36	36	120	27	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	670	258	49	678	70	26	36	36	120	27	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	22	670	258	49	678	70	26	36	36	120	27	36
Saturation Flow Module:												
Sat/Lane:	763	763	763	789	789	789	96	96	96	262	262	262
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.02	0.71	0.27	0.06	0.85	0.09	0.26	0.37	0.37	0.65	0.15	0.20
Final Sat.:	18	538	207	49	671	69	25	35	35	172	39	52
Capacity Analysis Module:												
Vol/Sat:	1.25	1.25	1.25	1.01	1.01	1.01	1.02	1.02	1.02	0.70	0.70	0.70
Crit Moves:	****				****		****				****	
ApproachV/S:		1.25			1.01			1.02			0.70	
Delay/Veh:	113.4	113	113.4	46.5	46.5	46.5	48.4	48.4	48.4	14.2	14.2	14.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	113.4	113	113.4	46.5	46.5	46.5	48.4	48.4	48.4	14.2	14.2	14.2
LOS by Move:	F	F	F	F	F	F	F	F	F	C	C	C
ApproachDel:		113.4			46.5			48.4			14.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		113.4			46.5			48.4			14.2	
LOS by Appr:		F			F			F			C	

PM Peak Hour - Future Conditions
Cotati Transit Village Specific Plan Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Old Redwood Highway/La Plaza South

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module: projected future												
Base Vol:	0	603	55	30	671	0	10	0	45	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	603	55	30	671	0	10	0	45	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	0	670	61	33	746	0	11	0	50	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	670	61	33	746	0	11	0	50	0	0	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	670	61	37	746	0	12	0	55	0	0	0
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	3.4	xxxx	2.6	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	6.5	xxxx	5.5	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	731	xxxx	xxxxx	1479	xxxx	746	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	769	xxxx	xxxxx	147	xxxx	580	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	0.92	xxxx	1.00	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	769	xxxx	xxxxx	135	xxxx	580	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	4.9	xxxx	xxxxx	29.1	xxxx	6.8	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	362	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.8	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	C	*	*	*	*
ApproachDel:		0.0			0.2			10.8			0.0	

PM Peak Hour - Future Conditions
Cotati Downtown Phase I Traffic Study
City of Cotati

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

****

Intersection #3 ORH/E Cotati-W Sierra

****

Cycle (sec): 100 Critical Vol./Cap. (X): 1.016
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 37.7
Optimal Cycle: 180 Level Of Service: D

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	1 1	0	1 0	1 1	0
Volume Module: projected future												
Base Vol:	33	537	43	549	602	142	149	349	76	23	275	485
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	33	537	43	549	602	142	149	349	76	23	275	485
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	37	597	48	610	669	158	166	388	84	26	306	539
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	597	48	610	669	158	166	388	84	26	306	539
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	37	597	48	610	669	158	166	388	84	26	306	539
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.99	0.99	0.95	0.97	0.97	0.95	0.97	0.97	0.95	1.00	0.85
Lanes:	1.00	1.85	0.15	1.00	1.62	0.38	1.00	1.64	0.36	1.00	1.00	1.00
Final Sat.:	1805	3482	280	1805	2982	704	1805	3030	656	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.17	0.17	0.34	0.22	0.22	0.09	0.13	0.13	0.01	0.16	0.33
Crit Moves:		****		****			****					****
Green/Cycle:	0.04	0.17	0.17	0.33	0.46	0.46	0.09	0.38	0.38	0.04	0.33	0.33
Volume/Cap:	0.49	1.02	1.02	1.02	0.49	0.49	1.02	0.34	0.34	0.34	0.49	1.02
Delay/Veh:	34.1	58.6	58.6	54.1	12.4	12.4	88.8	14.5	14.5	31.1	17.6	49.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.1	58.6	58.6	54.1	12.4	12.4	88.8	14.5	14.5	31.1	17.6	49.8
DesignQueue:	2	29	2	25	21	5	9	14	3	1	12	22

****

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (ft)	Shrt Lane (ft)
West: Eastbound Henry St												
1 LTR	26	36	36	98	3				0.163	6.4	27	
	26	36	36	98	3				0.163	6.4	27	
South: Northbound ORH												
1 LTR	23	670	258	951	2				0.551	0.5	124	
	23	670	258	951	2				0.551	0.5	124	
East: Westbound Charles St.												
1 LTR	120	27	36	183	2				0.263	5.3	46	
	120	27	36	183	2				0.263	5.3	46	
North: Southbound ORH												
1 LTR	49	678	70	797	2				0.503	0.8	103	
	49	678	70	797	2				0.503	0.8	103	
ALL VEHICLES				Tot Arv. 2029	% HV 2				Max X 0.552	Aver. Delay 1.3	Max Queue 124	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue.

Old Redwood Highway/Henry St-Charles St * CHP-1F *
PM Peak Hour - Future Conditions (Existing Road Network)
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastbound Henry St						
12	LTR	98	602	0.163	6.4	B
		98	602	0.163	6.4	B
South: Northbound ORH						
32	LTR	951	1724	0.552*	0.5	A
		951	1724	0.552	0.5	A
East: Westbound Charles St.						
22	LTR	183	696	0.263	5.3	B
		183	696	0.263	5.3	B
North: Southbound ORH						
42	LTR	797	1583	0.503	0.8	A
		797	1583	0.503	0.8	A
ALL VEHICLES:		2029	4606	0.552	1.3	A
INTERSECTION:		2029	4606	0.552	1.3	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (ft)	Shrt Lane (ft)
West: Eastbound La Plaza South												
1 LTR	12	2	50	64	5				0.093	5.3	17	
	12	2	50	64	5				0.093	5.3	17	
South: Northbound ORH												
1 TR	0	670	61	731	2				0.392	0.2	72	
	0	670	61	731	2				0.392	0.2	72	
North: Southbound ORH												
1 LT	34	746	0	780	2				0.418	0.0	0	
	34	746	0	780	2				0.418	0.0	0	

ALL VEHICLES	Tot Arv.	% HV	Max X	Aver. Delay	Max Queue
	1575	2	0.418	0.3	103

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue.

Old Redwood Highway/La Plaza South * LPP-1F *
PM Peak Hour - Future Conditions (Existing Road Network)
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastbound La Plaza South						
12	LTR	64	689	0.093	5.3	B
		64	689	0.093	5.3	B
South: Northbound ORH						
32	TR	731	1865	0.392	0.2	B
		731	1865	0.392	0.2	B
North: Southbound ORH						
42	LT	780	1868	0.418*	0.0	A
		780	1868	0.418	0.0	A
ALL VEHICLES:		1575	4423	0.418	0.3	A
INTERSECTION:		1575	4423	0.418	0.3	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Arrival Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	95% Queue (ft)	Shrt Lane (ft)
West: Eastbound La Plaza South											
1 TR	0	291	698	989	2			0.633	1.2	158	
	0	291	698	989	2			0.633	1.2	158	
South: Northbound ORH											
1 LR	186	0	607	793	2			0.601	1.8	136	
	186	0	607	793	2			0.601	1.8	136	
East: Westbound La Plaza South											
1 LT	193	229	0	422	2			0.263	0.9	56	
	193	229	0	422	2			0.263	0.9	56	
ALL VEHICLES				Tot Arv. 2204	% HV 2			Max X 0.634	Aver. Delay 1.4	Max Queue 158	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue.

Old Redwood Highway/La Plaza South * LPP-2F *
PM Peak Hour - Future Conditions (ring junction)
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastbound La Plaza South						
12	TR	989	1561	0.634*	1.2	B
		989	1561	0.634	1.2	B
South: Northbound ORH						
32	LR	793	1320	0.601	1.8	A
		793	1320	0.601	1.8	A
East: Westbound La Plaza South						
22	LT	422	1603	0.263	0.9	B
		422	1603	0.263	0.9	B
ALL VEHICLES:		2204	4484	0.634	1.4	B
INTERSECTION:		2204	4484	0.634	1.4	B

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Roundabout Design Evaluation

Design Evaluations

This section discusses the design alternatives for a roundabout at Old Redwood Highway and Henry/Charles Streets together with a roundabout at Old Redwood Highway and La Plaza South.

A successful design of a roundabout must consider the physical elements of the intersections. These elements include street width, right-of-way, existing pedestrian walkways, street furniture, street lighting, adjacent parking supply and buildings. Mobility of all users needs to be considered. Elements of mobility include vehicle type (small cars as well as large trucks) pedestrian activity, and bicyclists.

Roundabouts have several basic design elements which are summarized below to provide the reader with a basis for further discussions.

Inscribed Circle	Outer diameter of the circle, outside-to-outside
Circulatory Roadway Width	The roadway width for vehicles traveling around the central island
Mountable Truck Apron	Outer portion of the central island used by large trucks. This portion of the island has a unique but driveable surface.
Non-Mountable Center Island	Center of island not used by vehicles, typically landscaped
Splitter Island	Small islands at the entry-exits to control speed and provide a pedestrian refuge.
Landscape Buffers	Landscape separate pedestrian/vehicle ativity and direct pedestrian movements

Old Redwood Highway at Henry/Charles Streets

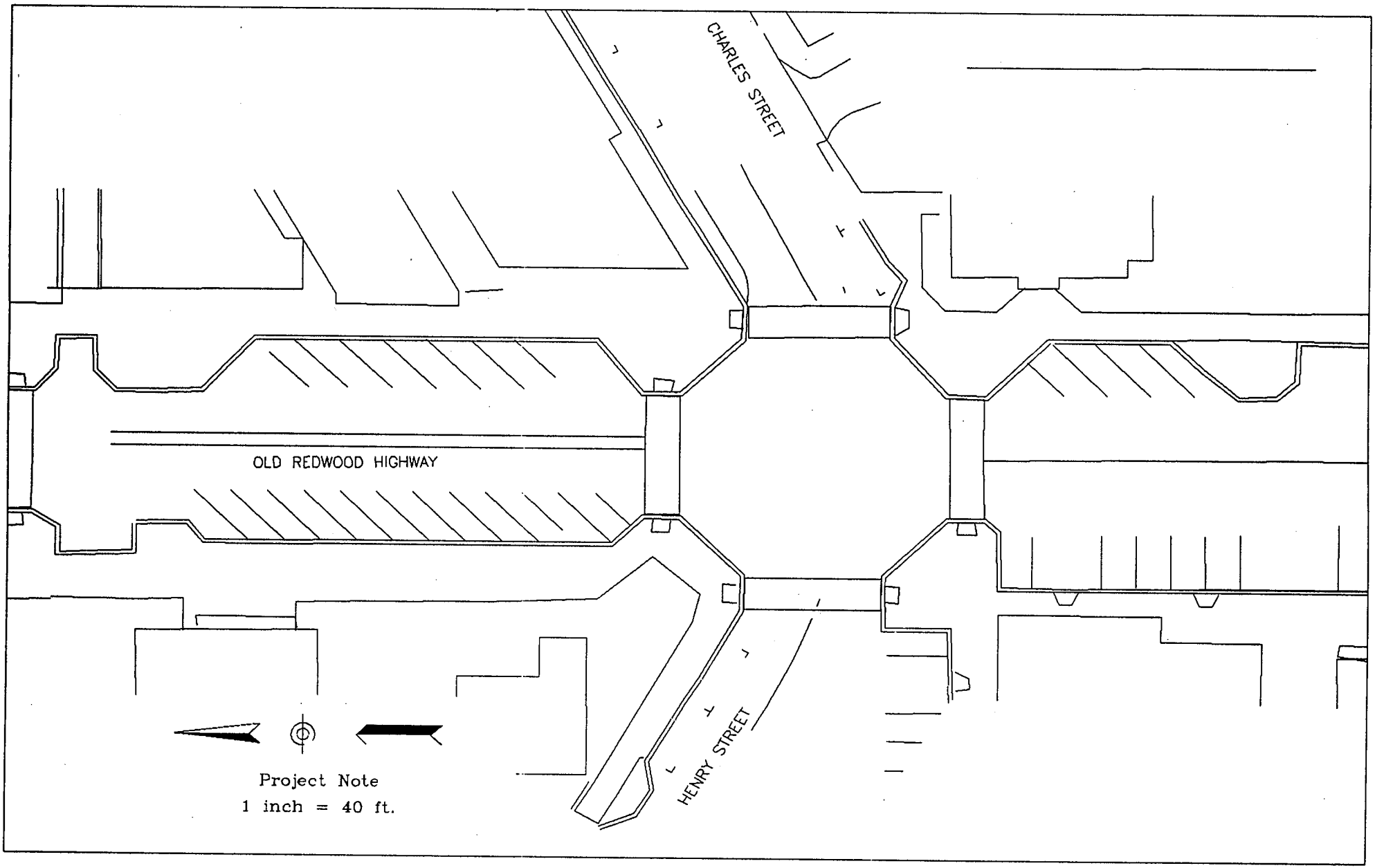
The initial design alternative for a roundabout at Old Redwood Highway and Henry/Charles Streets used as a base the existing intersection configuration to limit to the extent possible reconstruction of existing facilities. Under this alternative the diagonal measurement between curbs limits the size of the roundabout to diameter of 80 feet. The 80-foot inscribed circle falls within the Urban Compact Roundabouts design. The urban compact roundabouts are intended to be pedestrian and bicycle friendly. The inscribed circle determines the types of vehicle design vehicles that can be accommodated. The 80-foot inscribed circle will serve the turning requirements of single-unit trucks (fire engines, refuse collection, deliver) and buses. The central island is then determined by applying the circulatory roadway width within the inscribed circle. The central island and deflection angles are then checked to insure that appropriate vehicle speeds are maintained. The mountable center island is set by applying the turn requirements and swept path of the largest design vehicle anticipated at the intersection. The remaining portion of the central island which is not used by the largest anticipated vehicle can be landscaped.

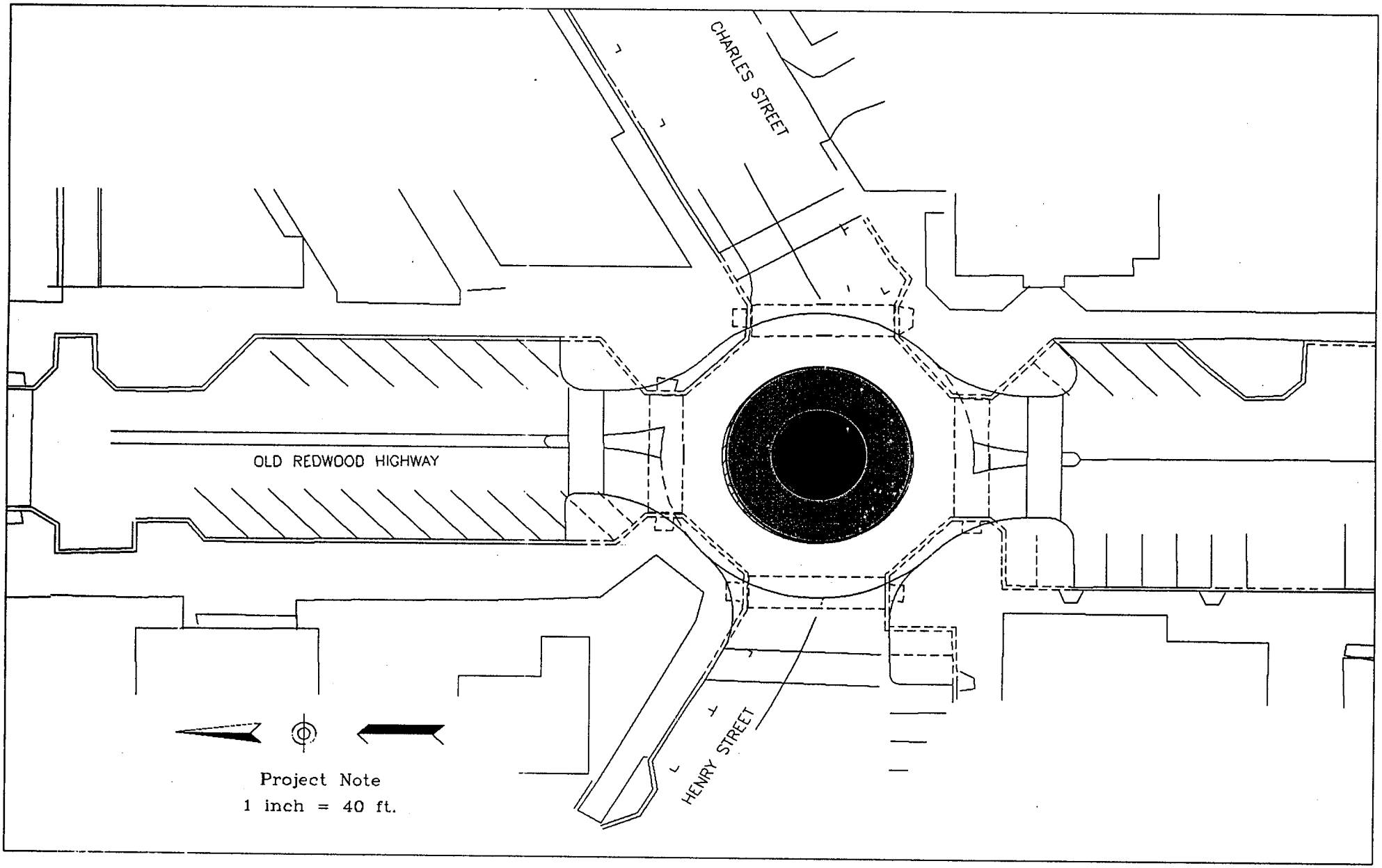
Pedestrian crossings are provided at a point approximately one vehicle length from the entry to the roundabout. The existing crosswalks will need to be relocated and the existing pedestrian ramps at the corners will need to be removed to reduce pedestrian confusion.

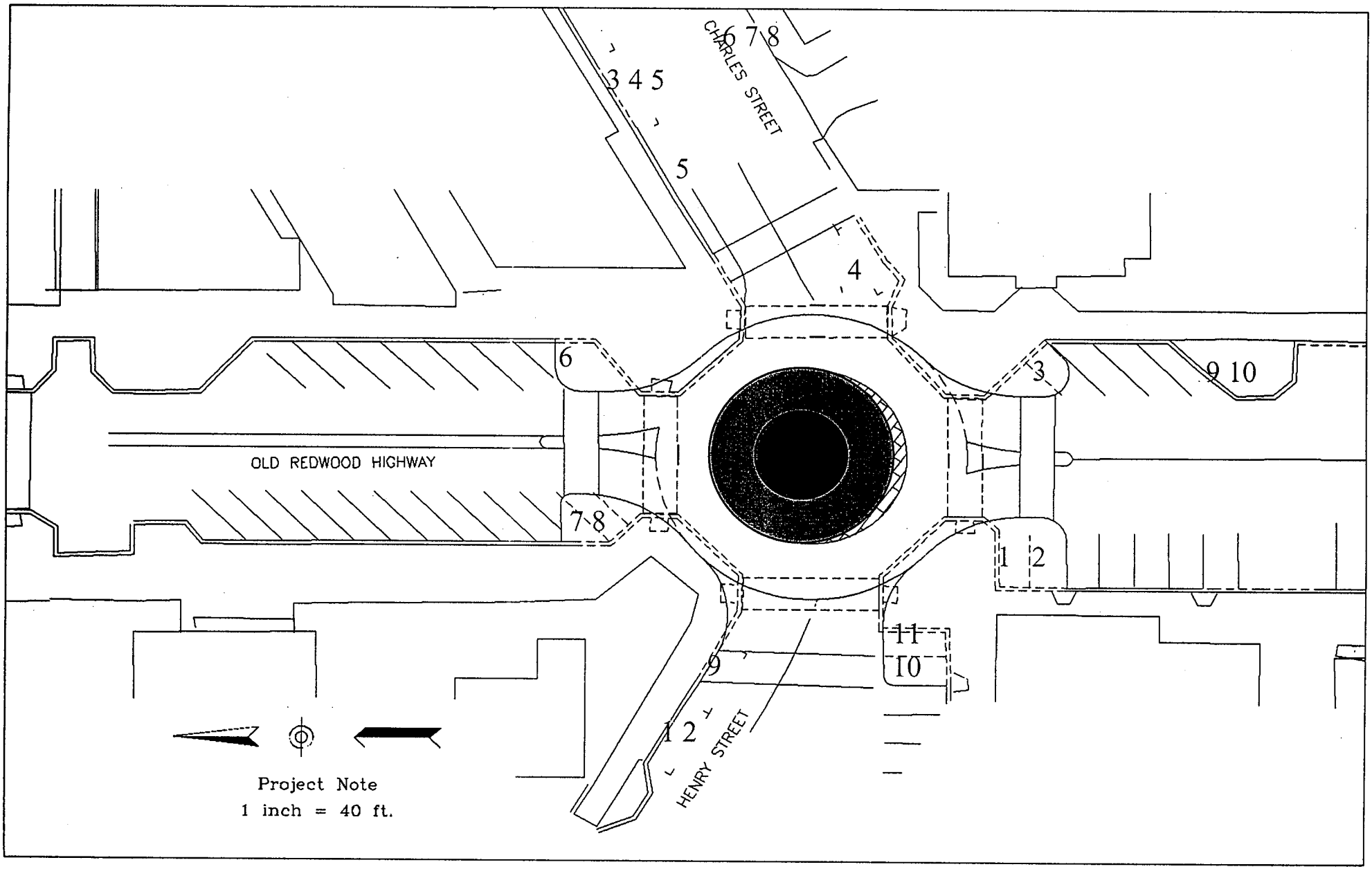
Construction of the 80-foot roundabout will result is significant portions of the intersection curbs to be reconstructed to address pedestrian crossing relocations. An alternative design was considered that would to the extent possible work within the limits of the sidewalk areas to be reconstructed.

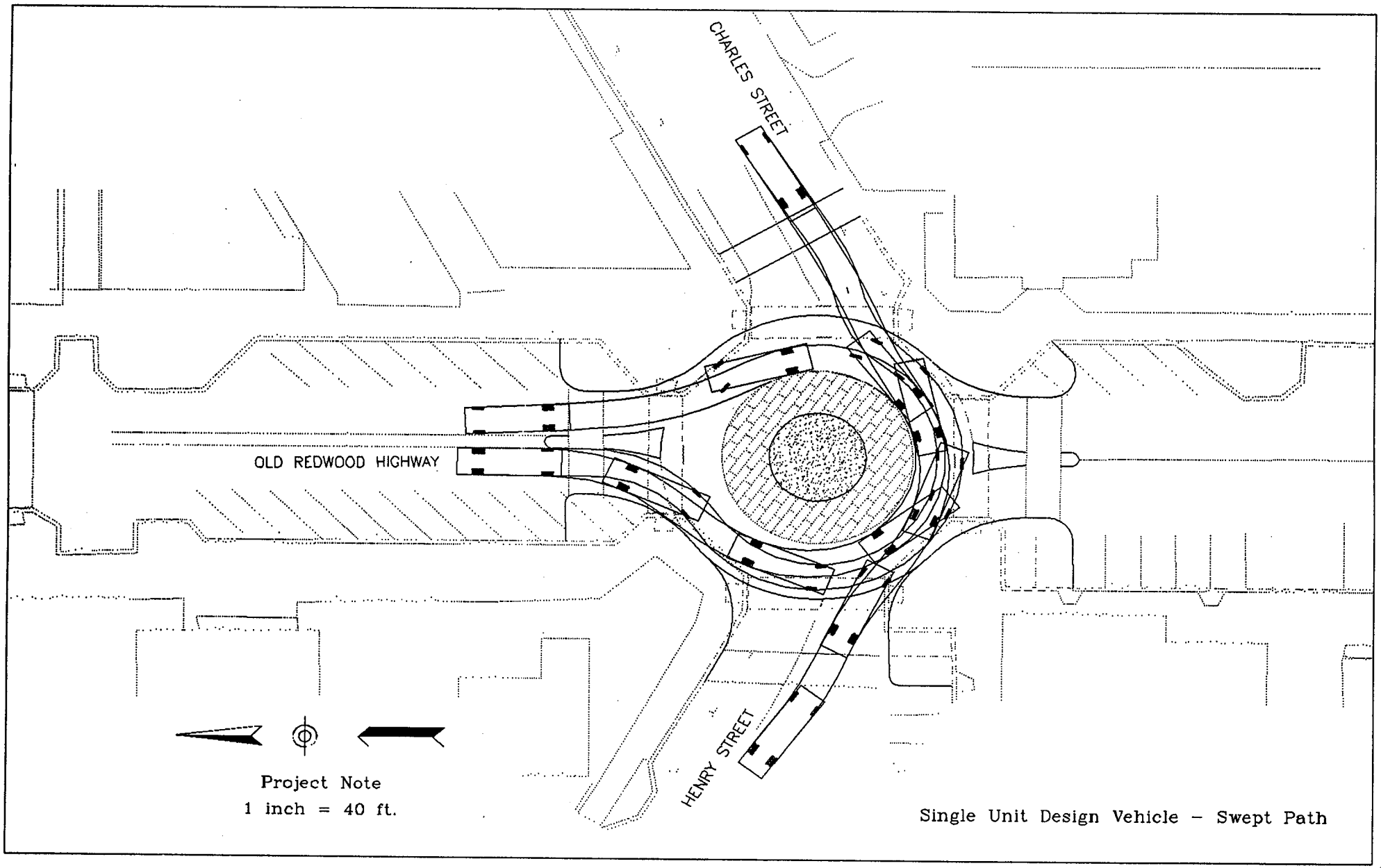
The relocation of the curbs within that portion of the sidewalk between the existing pedestrian ramps would

permit the inscribed circle to be increased to 90 feet from 80-feet by widening 5 feet on each corner. The 90-foot inscribed circle was then evaluated as described above. The 90-foot roundabout design is considered superior as it improves many design elements while not increasing significantly the area of construction, loss of parking and pedestrian walkways.

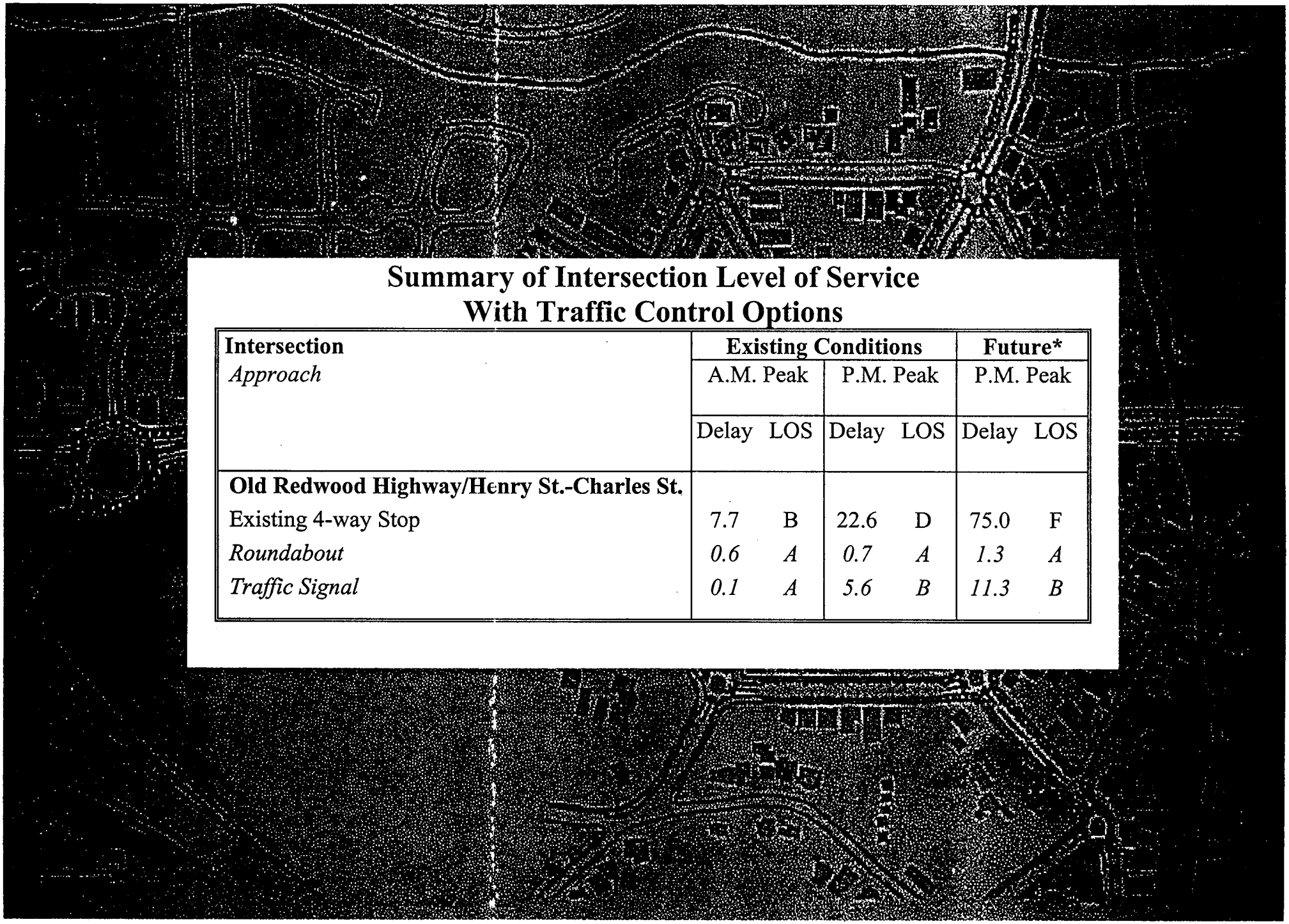

CHARLES STREET
OLD REDWOOD HIGHWAY
HENRY STREET
Project Note
1 inch = 40 ft.


CHARLES STREET
OLD REDWOOD HIGHWAY
HENRY STREET
Project Note
1 inch = 40 ft.


CHARLES STREET
OLD REDWOOD HIGHWAY
HENRY STREET
Project Note
1 inch = 40 ft.

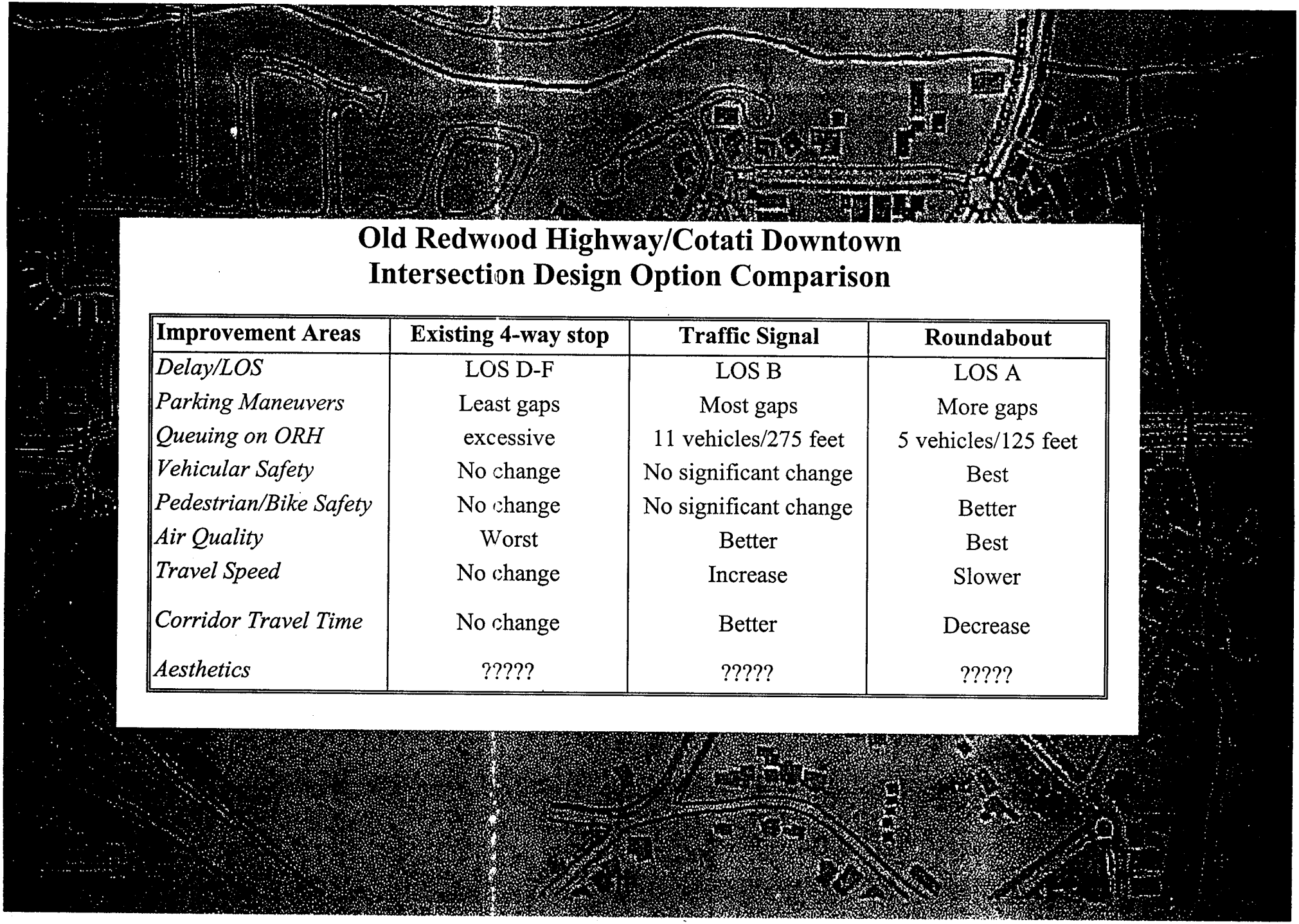


Single Unit Design Vehicle – Swept Path



Summary of Intersection Level of Service With Traffic Control Options

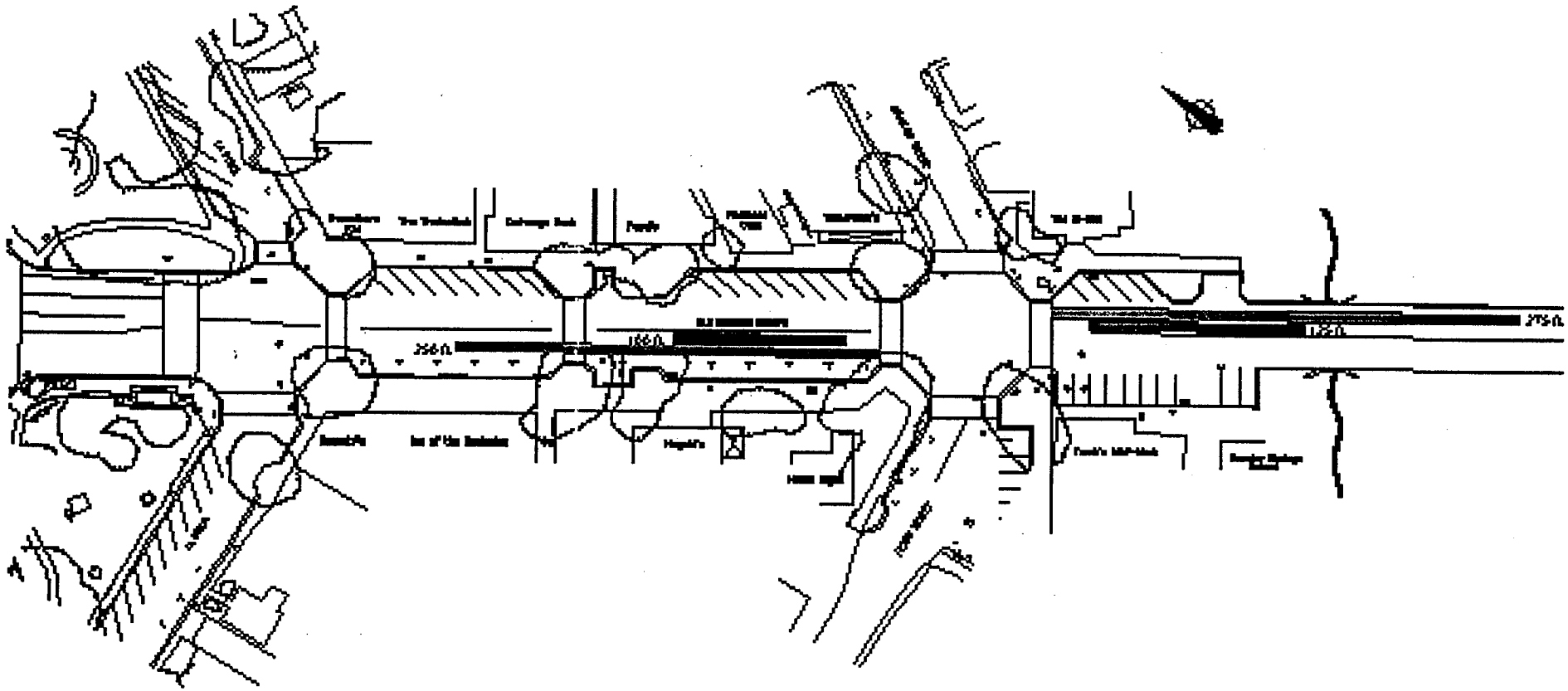
Intersection *Approach*	**Existing Conditions**				**Future***	
	A.M. Peak		P.M. Peak		P.M. Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
Old Redwood Highway/Henry St.-Charles St.						
Existing 4-way Stop	7.7	B	22.6	D	75.0	F
Roundabout	*0.6*	*A*	*0.7*	*A*	*1.3*	*A*
Traffic Signal	*0.1*	*A*	*5.6*	*B*	*11.3*	*B*

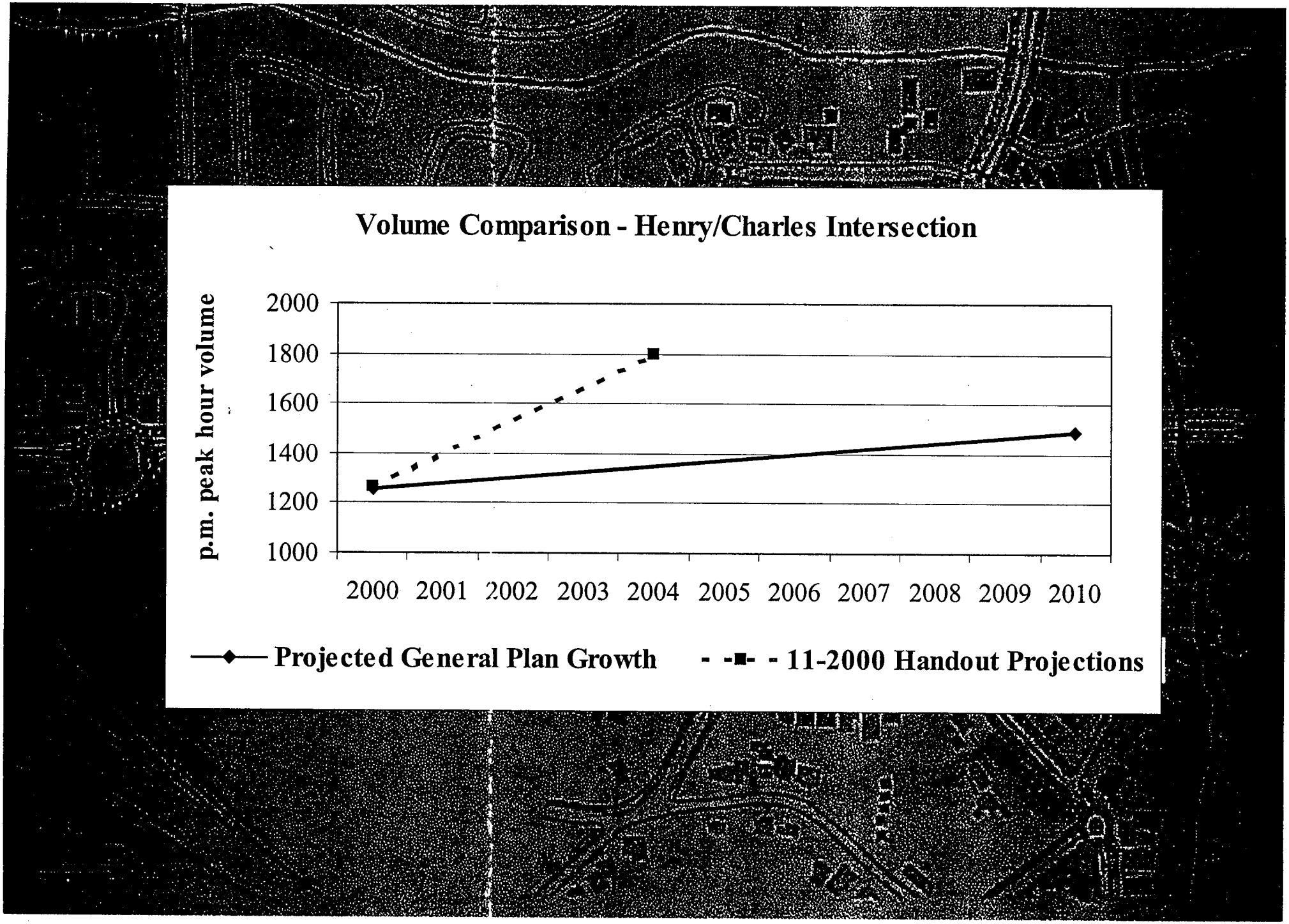


Old Redwood Highway/Cotati Downtown Intersection Design Option Comparison

Improvement Areas	Existing 4-way stop	Traffic Signal	Roundabout
Delay/LOS	LOS D-F	LOS B	LOS A
Parking Maneuvers	Least gaps	Most gaps	More gaps
Queuing on ORH	excessive	11 vehicles/275 feet	5 vehicles/125 feet
Vehicular Safety	No change	No significant change	Best
Pedestrian/Bike Safety	No change	No significant change	Better
Air Quality	Worst	Better	Best
Travel Speed	No change	Increase	Slower
Corridor Travel Time	No change	Better	Decrease
Aesthetics	?????	?????	?????

Stacking Distance Comparison - Future PM Peak Hour




Volume Comparison - Henry/Charles Intersection
p.m. peak hour volume
2000
1800
1600
1400
1200
1000
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Projected General Plan Growth
11-2000 Handout Projections

Downtown Vision Plan - Walkable Cotati Phase 1
Council Questions from 8/30/00 Council Study Session with Responses.

1. Are there similar downtown locations to Cotati with roundabouts?

Use of roundabouts in the United States is only recently growing in popularity and is being applied in a variety of situations including downtown areas. There are no local examples of downtown roundabouts. The Casa Grande/Ely Roundabout in Petaluma is the only arterial roundabout in Sonoma County. There are examples of roundabout in pedestrian, commercial area shown on the attached photos including Bradenton Beach, Florida; Fort Pierce, Florida; Annapolis, Maryland; a European example, Avon, Colorado; and Gettysburg, Pennsylvania.

2. What are the impacts of roundabouts on the City bike plan and bicycle safety?

A modern roundabout is considered safer for bicyclists compared to signalized intersections. Studies of early roundabout designs in western France revealed that certain aspects of roundabouts such as dedicated bicycle lanes in the circular roadway area had negative impacts to bicycle safety. An essential element of designing is to maintain vehicle speed in a roundabout between 10 and 15 miles per hour. At this design speeds the bicyclist and the motorists both travel through the roundabout at the same relative speed giving the bicyclist equal consideration and safety for the bicyclist is improved. The results of these studies have been included into modern roundabout design criteria and would be incorporated into the designs proposed. There are, as well, a number of bicyclist which feel uncomfortable within the roundabout, therefore provisions are included which provide access opportunities for bicyclist to leave the roadway and use the perimeter sidewalk areas.

It should be noted that is generally not appropriate to stripe bikelanes in the downtown area that has diagonal parking. This section of Old Redwood Highway is intended to be a destination point, not a through traffic and bike route. Therefore, the roundabout as proposed will not adversely influence bicyclist behavior and discourage bicyclist from accessing the corridor.

3. What are the impacts to vehicular speed through downtown with and without roundabouts?

With existing stop sign controlled intersection at Old Redwood Highway/ Henry-Charles:

Vehicular traffic is currently metered at the stop sign controlled intersection Henry-Charles streets. Vehicles departing and entering this intersection on Old Redwood Highway are required to stop and speeds are controlled near the intersection. Vehicle speeds from 200 feet or further from controlled intersections are not expected to be impacted.

With roundabout at Old Redwood Highway/Henry Charles:

Vehicular speeds leaving the intersection will be expected to be approximately the same as with a four-way stop. Mid-block speed of vehicles are not anticipated to be affected as results of the installation of one or more roundabouts, unless a roundabout is included at Old Redwood Highway/La Plaza South. Under this condition, speeds approaching the intersection from both directions should decrease. Travel time through the corridors will decrease as vehicular delayed at the existing stop sign controlled intersection are reduced.

With signalization of Old Redwood Highway/Henry-Charles.

Vehicles speeds may increase at or near the intersection of Henry-Charles with the installation of a traffic signal. Unrestricted north and south traffic movements would not be encouraged to the reduce speed during

the green intervals for Old Redwood Highway. It is anticipated north/south movements on Old Redwood Highway will receive the majority of signal green time. Some increase in speed at the intersection of Henry-Charles can be expected for vehicles entering the intersection during the yellow clearance interval.

4. How many parking spaces will be lost and can they be replaced?

The proposed roundabout will result in a maximum loss of 11 parking spaces at the intersection of Old Redwood Highway/Henry-Charles Streets. The potential exists to reduce the number of lost parking spaces during the detail design phase. Recently the City of Cotati successfully gained 11 parking spaces as a result of early implementation of diagonal parking as part of the Walkable Cotati Phase 1 plan. There are additional opportunities for increasing parking in the area by approximately 6 to 12 spaces by including diagonal parking on side streets such as La Plaza South and Henry-Charles Streets. The number of parking spaces can also be increased with street frontage improvements along Henry and Charles Streets and would include curb, gutter and sidewalks.

5. What are of the impacts to parking maneuvers on Old Redwood Highway?

For the easterly side of Old Redwood Highway, parking maneuvers are not expected to be significantly impacted beneficially or adversely as a result of the installation of a roundabout. The existing stop sign controlled intersection at Henry-Charles currently meters traffic flow in steady and regular intervals during peak periods. The roundabout would regulate traffic flows on Old Redwood Highway in the northerly direction in a similar way. However, the roundabout would have the ability to maintain some semblance of any platooning of vehicles arriving into the intersection. Platooning would provide more gaps for parking maneuvers.

Installation of a roundabout at Henry-Charles can be perceived as having a beneficial impact to parking maneuvers on the westerly side of Old Redwood Highway as vehicle backups at existing stop sign control the intersection are reduced making parking maneuvers difficult. Parking maneuvers into and out of diagonal spaces in the southbound direction on Old Redwood Highway will encounter easier accessibility as vehicle backups at the intersection are reduced.

6. What are the impacts to local adjacent streets?

There are no measurable beneficial or adverse impacts to Henry Street or Charles Street with the installation of the roundabout at Old Redwood Highway/Henry-Charles. The existing four-ways stop at Old Redwood Highway/Henry-Charles facilitates through movement across the busier Old Redwood Highway and the installation of a roundabout would therefore not alter the local travel patterns on Henry-Charles.

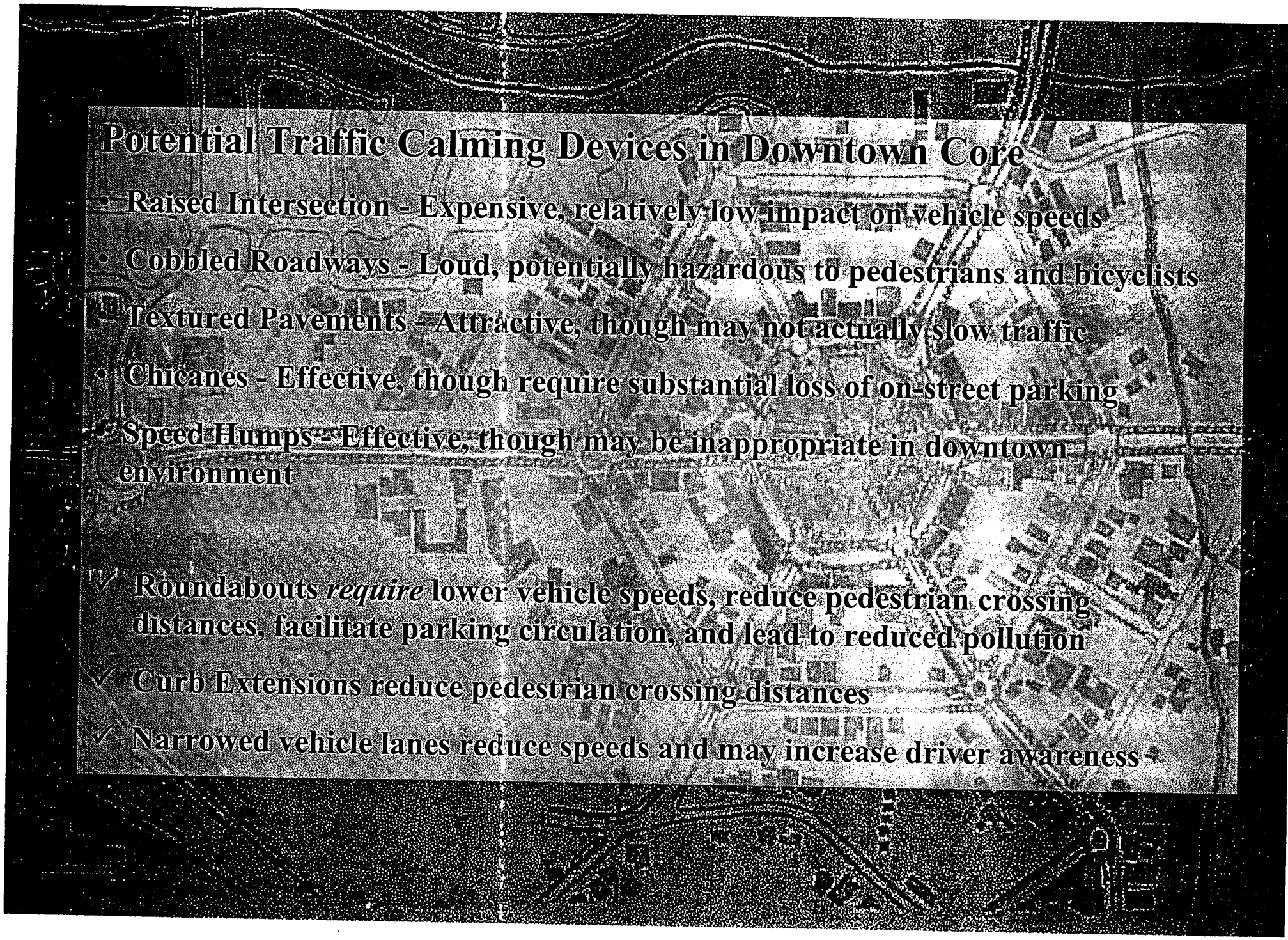
A roundabout at Old Redwood Highway/ La Plaza South has the potential to increase traffic volumes on La Plaza South with the installation of a roundabout at Old Redwood Highway. Motorists traveling easterly on La Plaza may find this route an attractive alternative to the signalized intersection of West Sierra-East Cotati Avenue. As a result of being able to cross Old Redwood Highway easily at the roundabout volumes are expected to increase.

7. What are the impacts to pedestrian crossing the street.

Studies conducted by the Federal Highway Administration confirm earlier studies in Australia that roundabouts are safer for pedestrians than other types of traffic control. Pedestrian crossings at the roundabout controlled intersection will be safer as pedestrians will cross a shorter distance and will have a median refuge island. Pedestrians will encounter fewer conflicting vehicular movements with which to confront. The use of splitter

islands at the roundabout provides a refuge area for pedestrians allowing the pedestrian to cross the street one direction at a time and from a relatively safe vantage point.

However, blind pedestrians have encountered some difficulty with using roundabouts as the audible queues they rely upon have changed. The use of In-pavement Pedestrian warning devices such as are used in Petaluma could be employed to assist all pedestrian crossings at the roundabout and at the existing mid-block pedestrian crossing.


Potential Traffic Calming Devices in Downtown Core
• Raised Intersection - Expensive, relatively low impact on vehicle speeds
• Cobbled Roadways - Loud, potentially hazardous to pedestrians and bicyclists
• Textured Pavements - Attractive, though may not actually slow traffic
• Chicanes - Effective, though require substantial loss of on-street parking
• Speed Humps - Effective, though may be inappropriate in downtown environment
✓ Roundabouts *require* lower vehicle speeds, reduce pedestrian crossing distances, facilitate parking circulation, and lead to reduced pollution
✓ Curb Extensions reduce pedestrian crossing distances
✓ Narrowed vehicle lanes reduce speeds and may increase driver awareness

Downtown Vision Plan - Walkable Cotati Phase 1
December 13, 2000
Response to Comments from 12/6/00 Workshop

Why are pedestrians safer in roundabouts?

Studies of roundabouts by the Federal Highway Administration (FHWA) and the Insurance Institute for Highway Safety have confirmed that roundabouts are the safest form of traffic control for pedestrians. Roundabouts feature slower moving traffic which gives drivers more opportunity to recognize the presence of pedestrians. Due to the set-back location of the crosswalk, pedestrians frequently cross behind a vehicles which is waiting to enter the roundabout. The splitter islands on each approach provide refuge for pedestrians so that only one direction of traffic has to be crossed at a time. The position of the crosswalks creates a situation where vehicles are approaching pedestrians perpendicularly giving drivers the best view of the pedestrian. Compare this with traffic signals where right turning vehicles on red approach pedestrians at an acute angle. This movement at traffic signals is generally the cause of the most pedestrian accidents at signal controlled intersections.

The roundabout option can be supplemented with in-pavement crosswalk warning lights, similar to those in Petaluma. These lights have been used for the first time at a roundabout in Colorado.

How do bicyclists negotiate the roundabout?

The FHWA recommended approach is to provide the bicyclist with two options. Since the bicyclist is traveling at the same speeds as the vehicular traffic in approaching the roundabout, the cyclist can "claim the lane" and become a vehicle in negotiating the roundabout. As an alternative, exit ramps should be provided so that the cyclist can exit the street and become a pedestrian in crossing.

Will the roundabout cause a backup of cars from the traffic signal at East Cotati Avenue?

Based on the capacity analysis of the intersection of Old Redwood Highway/East Cotati Avenue, assuming future traffic volumes, we believe that queuing in the northbound direction will not extend significantly past the crosswalk just south of La Plaza south. The roundabout will feed traffic northbound toward the traffic signal so that the pace of traffic will be similar at the northbound approach at East Cotati Avenue will be similar to existing conditions. A traffic signal at Henry Street-Charles Street will result in more surges of traffic at the northbound approach of the East Cotati Avenue with queues that are approximately 125 feet longer than queues with the roundabout, extending to the vicinity of Exchange Bank. In summary, the roundabout should have no significant negative affect on the traffic signal at East Cotati Avenue.

How do these plans interface with the entire vision plan?

Both plan options have been designed so that they can stand alone regardless of what happens in the corridor. Although they both solidify that Old Redwood Highway will remain a two-lane facility, south of East Cotati Avenue. The roundabout option is consistent with the Walkable Cotati plan,

Project Cost Estimate - Alternate 1- Signalized Intersection

Project Name: Walkable Cotati Phase 1
Project Owner: City of Cotati
Project Location: Cotati, CA

Project No.: E99-7
Estimated by: Fisher/Wise
Checked by: Bertolero
Date: Jan. 8, 2001

Summary

Mobilization	$	50,000
Tree and root pruning & structural soil	$	110,875
North Entry Traffic Calming	$	208,915
Northeast Streetscape	$	257,124
Northwest Streetscape	$	260,363
Charles/Henry Streets	$	156,428
Signalized Intersection	$	456,761
Southeast Streetscape	$	36,486
Southwest Streetscape	$	85,624
Bridge Area	$	54,836
AC Overlay	$	79,643
Subtotal	$	1,757,053
Contingencies (25%)	$	439,263
Public involvement, studies, engineering (15%)	$	263,558
Construction-related support services (12%)	$	210,846
Total	**$**	**2,670,721**

Base Project Summary

Note: items include contingencies

Mobilization	$	25,000
Signalized intersection improvements	$	76,802
Tree planting (existing trees only)	$	138,594
Repair additional uprooted sidewalk	$	37,500
AC Overlay	$	65,768
North Entry traffic calming	$	125,256
Bridge Modifications	$	62,220
Total (excluding studies/engineering)	**$**	**531,139**

Item	Quantity	Units	Engineering Estimate	
			Unit Cost	Total
TREE AND ROOT PRUNING & SOIL PREP. (For 14 sycamores and 1 redwood)				
3' depth excavation of area to receive structural soil incl. offhaul	350	cy	$ 25.00	$ 8,750
Pneumatic excavation of root zone of existing trees	15	ea	$ 1,000.00	$ 15,000
Root pruning	15	ea	$ 150.00	$ 2,250
Crown reduction	15	ea	$ 500.00	$ 7,500
Structural soil at $35/CY plus placement	350	cy	$ 45.00	$ 15,750
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	400	lf	$ 35.00	$ 14,000
Patch/add existing 4" concrete sidewalk w/ lamp black and hand seeded aggregat	2,550	sf	$ 8.00	$ 20,400
Twinkle lights in trees	15	ea	$ 800.00	$ 12,000
3" gravel mulch under tree grates only	375	sf	$ 0.60	$ 225
Metal tree grates 5' square, painted custom color	15	ea	$ 1,000.00	$ 15,000
			Subtotal	**110,875.00**
NORTH ENTRY TRAFFIC CALMING				
Pedestrian barriers and control	1	allow	$ 1,500.00	**$ 1,500**
Demolition				
Adjust (E) Utility Rim to grade	3	ea	$ 1,000.00	$ 3,000
Demo (E) Curb & Gutter	341	lf	$ 1.00	$ 341
Demo (E) Concrete Paving	350	sf	$ 3.00	$ 1,050
Demo (E) Concrete sidewalk	4,248	sf	$ 1.00	$ 4,248
Sycamore removal (Includes stump removal typ.)	4	ea	$ 1,500.00	$ 6,000
			Subtotal	**$ 14,639**
Lighting Costs				
14' height acorn pole lights (plain)	18	ea	$ 2,500.00	$ 45,000
Sentinel light in median	1	ea	$ 7,500.00	$ 7,500
			Subtotal	**$ 52,500**
Landscaping costs				
Fine grading	1,279	sf	$ 1.00	$ 1,279
12" depth topsoil import and spreading for groundcover & shrubs	47	cy	$ 100.00	$ 4,700
Planter mix and installation in pots	8	cy	$ 100.00	$ 800
3" gravel mulch under tree grates only	50	sf	$ 0.60	$ 30
3" depth bark mulch, including installation	1,179	sf	$ 0.60	$ 707
Weed control fabric, installed (Includes underneath tree grates)	1,179	sf	$ 0.50	$ 590
24" box trees (includes staking)	6	ea	$ 350.00	$ 2,100
New lawn in plaza	115	sf	$ 1.00	$ 115
1 gallon groundcover	294	ea	$ 9.00	$ 2,646
Annuals 4" pot	637	plant	$ 3.00	$ 1,911
			Subtotal	**$ 14,878**
Concrete work				
Curb & Gutter	650	lf	$ 18.00	$ 11,700
Curb & Gutter (Center Island)	144	lf	$ 15.00	$ 2,160
2" Ac Overlay	12,812	sf	$ 1.00	$ 12,812
14" tall seat walls with tile inserts	34	lf	$ 125.00	$ 4,250
2' tall concrete pilasters with tile inserts and cast stone caps (Roundabout NIC)	4	ea	$ 1,500.00	$ 6,000
New peach/pink colored sidewalks with blue-green tile inlays	3,110	sf	$ 8.00	$ 24,880
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	2,031	sf	$ 8.00	$ 16,248
Special paving to encourage window shopping	114	sf	$ 20.00	$ 2,280
Excluding AC overlay			**Subtotal**	**$ 67,518**

Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), spray irrigation system for shrubs/groundcovers/pots water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Wood benches	1	ea	$ 2,000.00	$ 2,000
Artistic bike racks	3	ea	$ 800.00	$ 2,400
Clay pot (includes drainlines)	8	ea	$ 800.00	$ 6,400
Cast stone trash receptacles	2	ea	$ 1,000.00	$ 2,000
Cast stone recycle bins	2	ea	$ 2,000.00	$ 4,000
Cast stone ash urns	2	ea	$ 1,000.00	$ 2,000
Metal tree grates 5' square, painted custom color	3	ea	$ 1,000.00	$ 3,000
			Subtotal	**$ 21,800**
Tree planting preparation costs				
3' depth excavation of area to receive structural soil incl. offhaul	339	cy	$ 25.00	$ 8,475
Structural soil at $35/CY plus placement	339	cy	$ 45.00	$ 15,255
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 31,080**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	5,141	sf	$ 0	$ 1,285
Landscaping	1,504	sf	$ 0	$ 180
Annual color	325	sf	$ 3	$ 975
			Subtotal	**$ 2,441**
TOTAL FOR NORTH ENTRY TRAFFIC CALMING AREA				***$ 208,915***

NORTHEAST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	$ 1,000
Demolition				
Demo (E) Curb & Gutter	291	lf	$ 1.00	$ 291
Demo (E) Concrete sidewalk	4,520	sf	$ 1.00	$ 4,520
Pear tree removal	1	ea	$ 400.00	$ 400
Pear "boxes" to be removed NIC	1	ea		$ -
Groundcover/shrub removal	240	sf	$ 0.30	$ 72
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 5,783**
Lighting Costs				
14' height acorn pole lights (plain)	9	ea	$ 2,500.00	$ 22,500
Twinkle lights in trees	7	ea	$ 800.00	$ 5,600
			Subtotal	**$ 28,100**
Landscaping costs				
Fine grading	252	sf	$ 1.00	$ 252
12" depth topsoil import and spreading for groundcover & shrubs	9	cy	$ 100.00	$ 900
Planter mix and installation in pots	7	cy	$ 100.00	$ 700
3" gravel mulch under tree grates only	25	sf	$ 0.60	$ 15
3" depth bark mulch, including installation	252	sf	$ 0.60	$ 151
Weed control fabric, installed (Includes underneath tree grates)	277	sf	$ 0.50	$ 139
24" box trees (includes staking)	7	ea	$ 350.00	$ 2,450
1 gallon groundcover	50	ea	$ 9.00	$ 450
Annuals 4" pot	52	plants	$ 3.00	$ 156
			Subtotal	**$ 5,213**
Concrete work				
2" AC Overlay	6,275	sf	$ 1.00	$ 6,275
Curb & Gutter	406	lf	$ 18.00	$ 7,308
14" tall seat walls with tile inserts	22	lf	$ 125.00	$ 2,750
2' tall concrete pilasters with tile inserts and cast stone caps (Roundabout NIC)	3	ea	$ 1,500.00	$ 4,500
Small street fountain, 6' diameter, 16 ' tall w/ cast stone cap & tile inserts	1	ea	$ 20,000.00	$ 20,000
New peach/pink colored sidewalks with blue-green tile inlays	6,330	sf	$ 8.00	$ 50,640
New vehicular 6" concrete sidewalk w/color and tile inlays	100	sf	$ 12.00	$ 1,200
Special sidewalk for window shopping	390	sf	$ 8.00	$ 3,120
Exluding AC overlay			**Subtotal**	**$ 75,935**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 10,000.00	$ 10,000
			Subtotal	**$ 10,000**
Site Furnishings				
Artistic bike racks	1	ea	$ 800.00	$ 800
Metal pedestrian passageway enhancements-large, aluminum	2	ea	$ 7,000.00	$ 14,000
Metal pedestrian passageway enhancement-lsmall, aluminum	1	ea	$ 3,500.00	$ 3,500
Clay pot (includes drainlines)	13	ea	$ 800.00	$ 10,400
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
3' tall ornamental steel fence	152	lf	$ 80.00	$ 12,160
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Cast stone ash urns	1	ea	$ 1,000.00	$ 1,000
Metal tree grates 5' square, painted custom color	1	ea	$ 1,000.00	$ 1,000
Black metal café table and chair set	63	ea	$ 800.00	$ 50,400
Umbrellas for café seating sets	23	ea	$ 200.00	$ 4,600
Custom walls incorporating news stands	1	ea	$ 2,000.00	$ 2,000
			Subtotal	**$ 102,860**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	264	cy	$ 25.00	$ 6,600
Structural soil at $35/CY plus placement	264	cy	$ 45.00	$ 11,880
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	220	lf	$ 35.00	$ 7,700
			Subtotal	**$ 26,180**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	6,820	sf	$ 0	$ 1,705
Tree maintenance	7	ea	$ 24	$ 168
Landscaping	200	sf	$ 0	$ 24
Annual color	52	sf	$ 3	$ 156
			Subtotal	**$ 2,053**
TOTAL FOR NORTHEAST STREETSCAPE AREA				***257,123.70***

NORTHWEST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	$ 1,000
Demolition				
Demo (E) Curb & Gutter	272	lf	$ 1.00	$ 272
Demo (E) Concrete sidewalk	5,260	sf	$ 1.00	$ 5,260
Groundcover/shrub removal	50	sf	$ 0.30	$ 15
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 515**
Lighting Costs				
14' height acorn pole lights (plain)	9	ea	$ 2,500.00	$ 22,500
			Subtotal	**$ 22,500**
Landscaping costs				
Fine grading	263	sf	$ 1.00	$ 263
12" depth topsoil import and spreading for groundcover & shrubs	263	cy	$ 100.00	$ 26,300
Planter mix and installation in pots	7	cy	$ 100.00	$ 700
3" depth bark mulch, including installation	263	sf	$ 0.60	$ 158
Weed control fabric, installed (Includes underneath tree grates)	263	sf	$ 0.50	$ 132
24" box trees (includes staking)	7	ea	$ 350.00	$ 2,450
1 gallon groundcover	66	ea	$ 9.00	$ 594
Annuals 4" pot	56	plant	$ 3.00	$ 168
			Subtotal	**$ 30,764**
Concrete work				
2" AC Overlay	6,051	sf	$ 2.65	$ 16,035
Curb & Gutter	409	lf	$ 18.00	$ 7,362
Passageway enhancement:4' tall concrete pilasters w/ tile inlay& tubular steel	1	ea	$ 30,000.00	$ 30,000
New peach/pink colored sidewalks with blue-green tile inlays	7,448	sf	$ 8.00	$ 59,584
New vehicular 6" concrete sidewalk w/color and tile inlays	100	sf	$ 12.00	$ 1,200
Excluding AC overlay			**Subtotal**	**$ 74,749**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 10,000.00	$ 10,000
			Subtotal	**$ 10,000**
Site Furnishings				
Wood benches	3	ea	$ 2,000.00	$ 6,000
Artistic bike racks	2	ea	$ 800.00	$ 1,600
3' tall ornamental steel fence	128	lf	$ 80.00	$ 10,240
Clay pot (includes drainlines)	14	ea	$ 800.00	$ 11,200
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Black metal café table and chair set	18	ea	$ 800.00	$ 14,400
Mailboxes, FedEx boxes, etc	4	ea	NIC	
Umbrellas for café seating sets	18	ea	$ 200.00	$ 3,600
Flower kiosk	1	ea	$ 30,000.00	$ 30,000
Custom walls incorporating news stands	8	ea	$ 2,000.00	$ 16,000
			Subtotal	**$ 96,040**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	217	cy	$ 25.00	$ 5,425
Structural soil at $35/CY plus placement	217	cy	$ 45.00	$ 9,765
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 22,540**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	7,548	sf	$ 0	$ 1,887
Tree maintenance	7	ea	$ 24	$ 168
Landscaping	263	sf	$ 0	$ 32
Annual color	56	sf	$ 3	$ 168
			Subtotal	**$ 2,255**
TOTAL FOR NORTHWEST STREETSCAPE AREA				***$260,362.71***

CHARLES STREET AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Lighting Costs				
14' height acorn pole lights (plain)	5	ea	$ 2,500.00	$ 12,500
Twinkle lights in trees	4	ea	$ 800.00	$ 3,200
			Subtotal	**$ 15,700**

Landscaping costs				
Fine grading	132	sf	$ 1.00	$ 132
12" depth topsoil import and spreading for groundcover & shrubs	5	cy	$ 100.00	$ 500
3" gravel mulch under tree grates only	25	sf	$ 0.60	$ 15
3" depth bark mulch, including installation	132	sf	$ 0.60	$ 79
Weed control fabric, installed (Includes underneath tree grates)	182	sf	$ 0.50	$ 91
24" box trees (includes staking)	4	ea	$ 350.00	$ 1,400
1 gallon groundcover	33	ea	$ 9.00	$ 297
			Subtotal	**$ 2,514**
Concrete work				
2" AC Overlay	1,800	sf	$ 2.00	$ 3,600
Curb & Gutter	228	lf	$ 18.00	$ 4,104
New vehicular 6" concrete sidewalk w/color and tile inlays	120	sf	$ 12.00	$ 1,440
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	1,485	sf	$ 8.00	$ 11,880
			Subtotal	**$ 21,024**
Demolition				
Demo (E) Curb & Gutter	96	lf	$ 1.00	$ 96
Demo (E) Concrete sidewalk	512	sf	$ 1.00	$ 512
			Subtotal	**$ 608**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Metal tree grates 5' square, painted custom color	1	ea	$ 1,000.00	$ 1,000
			Subtotal	**$ 1,000**
Tree planting preparation costs				
3' depth excavation of area to receive structural soil incl. offhaul	178	cy	$ 25.00	$ 4,450
Structural soil at $35/CY plus placement	178	cy	$ 45.00	$ 8,010
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	220	lf	$ 35.00	$ 7,700
			Subtotal	**$ 20,160**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	1,485	sf	$ 0	$ 371
Tree maintenance	4	ea	$ 24	$ 96
Landscaping	132	sf	$ 0	$ 16
			Subtotal	**$ 483**
TOTAL FOR CHARLES STREET AREA				***$67,393.29***

SIGNALIZED INTERSECTION AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	575	lf	$ 1.00	$ 575
Demo (E) Concrete sidewalk	7,870	sf	$ 1.00	$ 7,870
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 8,945**
Lighting Costs				
14' height acorn pole lights (plain)	19	ea	$ 2,500.00	$ 47,500
Twinkle lights in trees	5	ea	$ 800.00	$ 4,000
Conduits for future signal & street lights	1	ls	$ 15,000.00	$ 15,000
			Subtotal	**$ 66,500**
Landscaping costs				
Fine grading	3,200	sf	$ 1.00	$ 3,200
12" depth topsoil import and spreading for groundcover & shrubs	118	cy	$ 100.00	$ 11,800
Planter mix and installation in pots	9	cy	$ 100.00	$ 900
3" gravel mulch under tree grates only	100	sf	$ 0.60	$ 60
3" depth bark mulch, including installation	3,300	sf	$ 0.60	$ 1,980
Weed control fabric, installed (Includes underneath tree grates)	3,721	sf	$ 0.50	$ 1,861
24" box trees (includes staking)	5	ea	$ 350.00	$ 1,750
1 gallon groundcover	800	ea	$ 9.00	$ 7,200
Annuals 4" pot	72	plants	$ 3.00	$ 216
			Subtotal	**$ 28,967**
Concrete work				
2" AC Overlay	12,785	sf	$ 1.00	$ 12,785
Curb & Gutter	764	lf	$ 18.00	$ 13,752
16" tall concrete seating modules with tile inserts but no cap	5	ea	$ 1,200.00	$ 6,000

14" tall seat walls with tile inserts	81	lf	$ 125.00	$ 10,125
2' tall concrete pilasters with tile inserts and cast stone caps	16	ea	$ 1,500.00	$ 24,000
New peach/pink colored sidewalks with blue-green tile inlays	9,516	sf	$ 8.00	$ 76,128
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	180	sf	$ 8.00	$ 1,440
Exlcluding AC overlay			**Subtotal**	**$ 104,908**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 15,000.00	$ 15,000
			Subtotal	**$ 15,000**
Site Furnishings				
Wood benches	1	ea	$ 2,000.00	$ 2,000
Artistic bike racks	8	ea	$ 800.00	$ 6,400
Drinking fountain, custom with stonework	1	ea	$ 4,000.00	$ 4,000
Clay pot (includes drainlines)	18	ea	$ 800.00	$ 14,400
3' tall ornamental steel fence	67	lf	$ 80.00	$ 5,360
Cast stone trash receptacles	4	ea	$ 1,000.00	$ 4,000
Cast stone recycle bins	4	ea	$ 2,000.00	$ 8,000
Metal tree grates 5' square, painted custom color	4	ea	$ 1,000.00	$ 4,000
Black metal café table and chair set	9	ea	$ 800.00	$ 7,200
Umbrellas for café seating sets	9	ea	$ 200.00	$ 1,800
Custom walls incorporating news stands	5	ea	$ 2,000.00	$ 10,000
			Subtotal	**$ 67,160**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	122	cy	$ 25.00	$ 3,050
Structural soil at $35/CY plus placement	122	cy	$ 45.00	$ 5,490
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	70	lf	$ 35.00	$ 2,450
			Subtotal	**$ 10,990**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	9,516	sf	$ 0	$ 2,379
Tree maintenance	13	ea	$ 24	$ 312
Landscaping	3,200	sf	$ 0	$ 384
Annual color	72	sf	$ 3	$ 216
			Subtotal	**$ 3,291**
TOTAL FOR SIGNALIZED INTERSECTION AREA				***$306,760.50***

HENRY STREET AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	36	lf	$ 1.00	$ 36
Demo (E) Concrete sidewalk	212	sf	$ 1.00	$ 212
Small redwood to be removed	3	ea	$ 2,000.00	$ 6,000
Groundcover/shrub removal	270	sf	$ 0.30	$ 81
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 6,829**
Lighting Costs				
14' height acorn pole lights (plain)	5	ea	$ 2,500.00	$ 12,500
Twinkle lights in trees	4	ea	$ 800.00	$ 3,200
			Subtotal	**$ 15,700**
Landscaping costs				
Fine grading	270	sf	$ 1.00	$ 270
12" depth topsoil import and spreading for groundcover & shrubs	270	cy	$ 100.00	$ 27,000
Planter mix and installation in pots	1	cy	$ 100.00	$ 100
3" depth bark mulch, including installation	270	sf	$ 0.60	$ 162
Weed control fabric, installed (Includes underneath tree grates)	270	sf	$ 0.50	$ 135
24" box trees (includes staking)	4	ea	$ 350.00	$ 1,400
1 gallon groundcover	67	ea	$ 9.00	$ 603
Annuals 4" pot	8	plant	$ 3.00	$ 24
			Subtotal	**$ 29,694**
Concrete work				
2" AC Overlay	3,750	sf	$ 2.00	$ 7,500
Curb & Gutter	300	lf	$ 18.00	$ 5,400
New vehicular 6" concrete sidewalk w/color and tile inlays	335	sf	$ 12.00	$ 4,020
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	1,591	sf	$ 8.00	$ 12,728
			Subtotal	**$ 16,748**
Irrigation Costs				

Drip irrigation system for trees, (IPS hose in sleeve between tree wells),				
system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Clay pots (includes drainlines)	2	ea	$ 800.00	$ 1,600
			Subtotal	**$ 1,600**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	89	cy	$ 25.00	$ 2,225
Structural soil at $35/CY plus placement	89	cy	$ 45.00	$ 4,005
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	160	lf	$ 35.00	$ 5,600
			Subtotal	**$ 11,830**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	1,926	sf	$ 0	$ 482
Tree maintenance	4	ea	$ 24	$ 96
Landscaping	270	sf	$ 0	$ 32
Annual color	8	sf	$ 3	$ 24
			Subtotal	**$ 634**
TOTAL FOR HENRY STREET AREA				***$89,034.90***

SOUTHEAST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	94	lf	$ 1.00	$ 94
Demo (E) Concrete sidewalk	1,622	sf	$ 1.00	$ 1,622
Sycamore removal (Includes stump removal typ.)	1	ea	$ 1,500.00	$ 1,500
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 3,716**
Lighting Costs				
14' height acorn pole lights (plain)	4	ea	$ 2,500.00	$ 10,000
Twinkle lights in trees	5	ea	$ 800.00	$ 4,000
			Subtotal	**$ 14,000**
Landscaping costs				
Fine grading	200	sf	$ 1.00	$ 200
12" depth topsoil import and spreading for groundcover & shrubs	8	cy	$ 100.00	$ 800
Planter mix and installation in pots	1	cy	$ 100.00	$ 100
Weed control fabric, installed (Includes underneath tree grates)	200	sf	$ 0.50	$ 100
1 gallon groundcover	50	ea	$ 9.00	$ 450
			Subtotal	**$ 1,650**
Concrete work				
2" AC Overlay	2,400	sf	$ 1.00	$ 2,400
Curb & Gutter	183	lf	$ 18.00	$ 3,294
New peach/pink colored sidewalks with blue-green tile inlays	544	sf	$ 8.00	$ 4,352
New vehicular 6" concrete sidewalk w/color and tile inlays	216	sf	$ 12.00	$ 2,592
Excluding AC overlay			**Subtotal**	**$ 4,544**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells),				
system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Tree planting preparation costs (Under sidewalk near redwood trees)				
3' depth excavation of area to receive structural soil incl. offhaul	89	cy	$ 25.00	$ 2,225
Structural soil at $35/CY plus placement	89	cy	$ 45.00	$ 4,005
			Subtotal	**$ 6,230**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	544	sf	$ 0	$ 82
Tree maintenance	10	ea	$ 24	$ 240
Landscaping	200	sf	$ 0	$ 24
			Subtotal	**$ 346**
TOTAL FOR SOUTHEAST STREETSCAPE AREA				***$36,485.60***

SOUTHWEST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				

Adjust (E) Utility Rim to grade	1	ea	$ 1,000.00	$ 1,000
Demo (E) Curb & Gutter	94	lf	$ 1.00	$ 94
Demo (E) Concrete sidewalk	1,622	sf	$ 1.00	$ 1,622
Pear tree removal	2	ea	$ 400.00	$ 800
Pear "boxes" to be removed NIC	2	ea	$ 500.00	$ 1,000
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 4,016**
Lighting Costs				
14' height acorn pole lights (plain)	3	ea	$ 2,500.00	$ 7,500
Twinkle lights in trees	2	ea	$ 800.00	$ 1,600
			Subtotal	**$ 9,100**
Landscaping costs				
Fine grading	250	sf	$ 1.00	$ 250
12" depth topsoil import and spreading for groundcover & shrubs	9	cy	$ 100.00	$ 900
Planter mix and installation in pots	3	cy	$ 100.00	$ 300
3" gravel mulch under tree grates only	50	sf	$ 0.60	$ 30
3" depth bark mulch, including installation	250	sf	$ 0.60	$ 150
Weed control fabric, installed (Includes underneath tree grates)	250	sf	$ 0.50	$ 125
24" box trees (includes staking)	2	ea	$ 350.00	$ 700
1 gallon groundcover	62	ea	$ 9.00	$ 558
Annuals 4" pot	24	plant	$ 3.00	$ 72
			Subtotal	**$ 3,085**
Concrete work				
2" AC Overlay	2,307	sf	$ 1.00	$ 2,307
Curb & Gutter	195	lf	$ 18.00	$ 3,510
New peach/pink colored sidewalks with blue-green tile inlays	2,092	sf	$ 8.00	$ 16,736
New vehicular 6" concrete sidewalk w/color and tile inlays	800	sf	$ 12.00	$ 9,600
Special paving to encourage window shopping	54	sf	$ 20.00	$ 1,080
Excluding AC overlay			**Subtotal**	**$ 24,029**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Wood benches	2	ea	$ 2,000.00	$ 4,000
Artistic bike racks	1	ea	$ 800.00	$ 800
Clay pot (includes drainlines)	6	ea	$ 800.00	$ 4,800
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Metal tree grates 5' square, painted custom color	11	ea	$ 1,000.00	$ 11,000
			Subtotal	**$ 23,800**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	114	cy	$ 25.00	$ 2,850
Structural soil at $35/CY plus placement	114	cy	$ 45.00	$ 5,130
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 15,330**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 2 months	2,092	sf	$ 0	$ 314
Landscaping	250	sf	$ 0	$ 30
Tree maintenance	2	ea	$ 24	$ 48
Annual color	24	sf	$ 3	$ 72
			Subtotal	**$ 464**
TOTAL FOR SOUTHWEST STREETSCAPE AREA				***$85,623.80***

BRIDGE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) curb & gutter	100	lf	$ 1.00	$ 100
Demo (E) Concrete sidewalk	1,600	sf	$ 1.00	$ 1,600
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 2,200**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	33	cy	$ 25.00	$ 825
Structural soil at $35/CY plus placement	33	cy	$ 45.00	$ 1,485
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	50	lf	$ 35.00	$ 1,750
			Subtotal	**$ 4,060**

Bridge modification costs				
Remove/ paint/ replace existing metal railing and posts	1	LS	$ 10,000	$ 10,000
Custom concrete lighted sentinels at bridge	4	ea	$ 6,500	$ 26,000
Patch/add existing 4" concrete sidewalk w/ peach colored pavement	1,072	sf	$ 8.00	$ 8,576
Move fire hydrant	1	ea	3000	$ 3,000
				$ 47,576
TOTAL FOR BRIDGE AREA				***$54,836.00***

Project Cost Estimate - Alternate 2A- Oak Tree Roundabout Intersection

Project Name: Walkable Cotati Phase 1
Project Owner: City of Cotati
Project Location: Cotati, CA

Project No.: E99-7
Estimated by: Fisher/Wise
Checked by: Bertolero
Date: 1/8/01

Summary

Mobilization	$	50,000
Tree and root pruning & structural soil	$	110,875
North Entry Traffic Calming	$	208,915
Northeast Streetscape	$	271,107
Northwest Streetscape	$	289,292
Charles Street (Including AC overlay)	$	66,881.29
Henry Street (Including AC overlay)	$	101,934.90
Roundabout Intersection	$	387,108
Southeast Streetscape	$	42,180
Southwest Streetscape	$	93,321
Bridge Area	$	54,836
AC Overlay (From E. Cotati Ave. to the bridge, excluding Henry and Charles Streets)	$	79,000
Subtotal	$	1,755,449
Contingencies (25%)	$	438,862
Public involvement, studies, engineering (15%)	$	263,317
Construction-related support services (12%)	$	210,654
Total	**$**	**2,668,282**

Base Project Summary

Note: Items include contingencies

Mobilization	$	25,000
Oak Tree Roundabout	$	279,435
Tree Planting (existing trees only)	$	138,594
Repair additional uprooted sidewalk	$	37,500
AC overlay	$	50,448
Total (excluding studies/engineering)	**$**	**530,977**

Item	Quantity	Units	Engineering Estimate	
			Unit Cost	Total
TREE AND ROOT PRUNING & SOIL PREP. (For 14 sycamores and 1 redwood)				
3' depth excavation of area to receive structural soil incl. offhaul	350	cy	$ 25.00	$ 8,750
Pneumatic excavation of root zone of existing trees	15	ea	$ 1,000.00	$ 15,000
Root pruning	15	ea	$ 150.00	$ 2,250
Crown reduction	15	ea	$ 500.00	$ 7,500
Structural soil at $35/CY plus placement	350	cy	$ 45.00	$ 15,750
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	400	lf	$ 35.00	$ 14,000
Patch/add existing 4" concrete sidewalk w/ peach colored concrete	2,550	sf	$ 8.00	$ 20,400
Twinkle lights in trees	15	ea	$ 800.00	$ 12,000
3" gravel mulch under tree grates only	375	sf	$ 0.60	$ 225
Metal tree grates 5' square, painted custom color	15	ea	$ 1,000.00	$ 15,000
			Subtotal	**110,875.00**
NORTH ENTRY TRAFFIC CALMING				
Pedestrian barriers and control	1	allow	$ 1,500.00	**$ 1,500**
Demolition				
Adjust (E) Utility Rim to grade	3	ea	$ 1,000.00	$ 3,000
Demo (E) Curb & Gutter	341	lf	$ 1.00	$ 341
Demo (E) Concrete Paving	350	sf	$ 3.00	$ 1,050
Demo (E) Concrete sidewalk	4,248	sf	$ 1.00	$ 4,248
Sycamore removal (Includes stump removal typ.)	4	ea	$ 1,500.00	$ 6,000
			Subtotal	**$ 14,639**
Lighting Costs				
14' height acorn pole lights (plain)	18	ea	$ 2,500.00	$ 45,000
Sentinel light in median	1	ea	$ 7,500.00	$ 7,500
			Subtotal	**$ 52,500**
Landscaping costs				
Fine grading	1,279	sf	$ 1.00	$ 1,279
12" depth topsoil import and spreading for groundcover & shrubs	47	cy	$ 100.00	$ 4,700
Planter mix and installation in pots	8	cy	$ 100.00	$ 800
3" gravel mulch under tree grates only	50	sf	$ 0.60	$ 30
3" depth bark mulch, including installation	1,179	sf	$ 0.60	$ 707
Weed control fabric, installed (Includes underneath tree grates)	1,179	sf	$ 0.50	$ 590
24" box trees (includes staking)	6	ea	$ 350.00	$ 2,100
New lawn in plaza	115	sf	$ 1.00	$ 115
1 gallon groundcover	294	ea	$ 9.00	$ 2,646
Annuals 4" pot	637	plant	$ 3.00	$ 1,911
			Subtotal	**$ 14,878**
Concrete work				
Curb & Gutter	650	lf	$ 18.00	$ 11,700
Curb & Gutter (Center Island)	144	lf	$ 15.00	$ 2,160
2" Ac Overlay	12,812	sf	$ 1.00	$ 12,812
14" tall seat walls with tile inserts	34	lf	$ 125.00	$ 4,250
2' tall concrete pilasters with tile inserts and cast stone caps (Roundabout NIC)	4	ea	$ 1,500.00	$ 6,000
New peach/pink colored sidewalks with blue-green tile inlays	3,110	sf	$ 8.00	$ 24,880
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	2,031	sf	$ 8.00	$ 16,248
Special paving to encourage window shopping	114	sf	$ 20.00	$ 2,280
Excluding AC overlay			**Subtotal**	**$ 67,518**

Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), spray irrigation system for shrubs/groundcovers/pots water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Wood benches	1	ea	$ 2,000.00	$ 2,000
Artistic bike racks	3	ea	$ 800.00	$ 2,400
Clay pot (includes drainlines)	8	ea	$ 800.00	$ 6,400
Cast stone trash receptacles	2	ea	$ 1,000.00	$ 2,000
Cast stone recycle bins	2	ea	$ 2,000.00	$ 4,000
Cast stone ash urns	2	ea	$ 1,000.00	$ 2,000
Metal tree grates 5' square, painted custom color	3	ea	$ 1,000.00	$ 3,000
			Subtotal	**$ 21,800**
Tree planting preparation costs				
3' depth excavation of area to receive structural soil incl. offhaul	339	cy	$ 25.00	$ 8,475
Structural soil at $35/CY plus placement	339	cy	$ 45.00	$ 15,255
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 31,080**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	5,141	sf	$ 0	$ 1,285
Landscaping	1,504	sf	$ 0	$ 180
Annual color	325	sf	$ 3	$ 975
			Subtotal	**$ 2,441**
TOTAL FOR NORTH ENTRY TRAFFIC CALMING AREA				***$ 208,915***

NORTHEAST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	$ **1,000**
Demolition				
Demo (E) Curb & Gutter	291	lf	$ 1.00	$ 291
Demo (E) Concrete sidewalk	4,520	sf	$ 1.00	$ 4,520
Pear tree removal	1	ea	$ 400.00	$ 400
Pear "boxes" to be removed NIC	1	ea	$ 400.00	$ 400
Groundcover/shrub removal	240	sf	$ 0.30	$ 72
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	$ **6,183**
Lighting Costs				
14' height acorn pole lights (plain)	9	ea	$ 2,500.00	$ 22,500
Twinkle lights in trees	7	ea	$ 800.00	$ 5,600
			Subtotal	$ **28,100**
Landscaping costs				
Fine grading	252	sf	$ 1.00	$ 252
12" depth topsoil import and spreading for groundcover & shrubs	9	cy	$ 100.00	$ 900
Planter mix and installation in pots	7	cy	$ 100.00	$ 700
3" gravel mulch under tree grates only	25	sf	$ 0.60	$ 15
3" depth bark mulch, including installation	252	sf	$ 0.60	$ 151
Weed control fabric, installed (Includes underneath tree grates)	277	sf	$ 0.50	$ 139
24" box trees (includes staking)	7	ea	$ 350.00	$ 2,450
1 gallon groundcover	50	ea	$ 9.00	$ 450
Annuals 4" pot	52	plants	$ 3.00	$ 156
			Subtotal	$ **5,213**
Concrete work				
2" AC Overlay	6,275	sf	$ 1.00	$ 6,275
Curb & Gutter	406	lf	$ 18.00	$ 7,308
14" tall seat walls with tile inserts	22	lf	$ 125.00	$ 2,750
2' tall concrete pilasters with tile inserts and cast stone caps (Roundabout NIC)	3	ea	$ 1,500.00	$ 4,500
Small street fountain, 6' diameter, 16 ' tall w/ cast stone cap & tile inserts	1	ea	$ 20,000.00	$ 20,000
New peach/pink colored sidewalks with blue-green tile inlays	6,330	sf	$ 8.00	$ 50,640
New vehicular 6" concrete sidewalk w/color and tile inlays	100	sf	$ 12.00	$ 1,200
Special sidewalk for window shopping	390	sf	$ 8.00	$ 3,120
Excludes AC overlay			**Subtotal**	$ **89,518**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 10,000.00	$ 10,000
			Subtotal	$ **10,000**
Site Furnishings				
Artistic bike racks	1	ea	$ 800.00	$ 800
Metal pedestrian passageway enhancements-large, aluminum	2	ea	$ 7,000.00	$ 14,000
Metal pedestrian passageway enhancement-lsmall, aluminum	1	ea	$ 3,500.00	$ 3,500
Clay pot (includes drainlines)	13	ea	$ 800.00	$ 10,400
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
3' tall ornamental steel fence	152	lf	$ 80.00	$ 12,160
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Cast stone ash urns	1	ea	$ 1,000.00	$ 1,000
Metal tree grates 5' square, painted custom color	1	ea	$ 1,000.00	$ 1,000
Black metal café table and chair set	63	ea	$ 800.00	$ 50,400
Umbrellas for café seating sets	23	ea	$ 200.00	$ 4,600
Custom walls incorporating news stands	1	ea	$ 2,000.00	$ 2,000
			Subtotal	$ **102,860**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	264	cy	$ 25.00	$ 6,600
Structural soil at $35/CY plus placement	264	cy	$ 45.00	$ 11,880
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	220	lf	$ 35.00	$ 7,700
			Subtotal	$ **26,180**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	6,820	sf	$ 0	$ 1,705
Tree maintenance	7	ea	$ 24	$ 168
Landscaping	200	sf	$ 0	$ 24
Annual color	52	sf	$ 3	$ 156
			Subtotal	$ **2,053**
TOTAL FOR NORTHEAST STREETSCAPE AREA				***271,106.70***

NORTHWEST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	272	lf	$ 1.00	$ 272
Demo (E) Concrete sidewalk	5,260	sf	$ 1.00	$ 5,260
Groundcover/shrub removal	50	sf	$ 0.30	$ 15
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 6,047**
Lighting Costs				
14' height acorn pole lights (plain)	9	ea	$ 2,500.00	$ 22,500
			Subtotal	**$ 22,500**
Landscaping costs				
Fine grading	263	sf	$ 1.00	$ 263
12" depth topsoil import and spreading for groundcover & shrubs	263	cy	$ 100.00	$ 26,300
Planter mix and installation in pots	7	cy	$ 100.00	$ 700
3" depth bark mulch, including installation	263	sf	$ 0.60	$ 158
Weed control fabric, installed (Includes underneath tree grates)	263	sf	$ 0.50	$ 132
24" box trees (includes staking)	7	ea	$ 350.00	$ 2,450
1 gallon groundcover	66	ea	$ 9.00	$ 594
Annuals 4" pot	56	plant	$ 3.00	$ 168
			Subtotal	**$ 30,764**
Concrete work				
2" AC Overlay	6,051	sf	$ 1.00	$ 6,051
Curb & Gutter	409	lf	$ 18.00	$ 7,362
Passageway enhancement:4' tall concrete pilasters w/ tile inlay& tubular steel	1	ea	$ 30,000.00	$ 30,000
New peach/pink colored sidewalks with blue-green tile inlays	7,448	sf	$ 8.00	$ 59,584
New vehicular 6" concrete sidewalk w/color and tile inlays	100	sf	$ 12.00	$ 1,200
Excludes AC overlay			**Subtotal**	**$ 98,146**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 10,000.00	$ 10,000
			Subtotal	**$ 10,000**
Site Furnishings				
Wood benches	3	ea	$ 2,000.00	$ 6,000
Artistic bike racks	2	ea	$ 800.00	$ 1,600
3' tall ornamental steel fence	128	lf	$ 80.00	$ 10,240
Clay pot (includes drainlines)	14	ea	$ 800.00	$ 11,200
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Black metal café table and chair set	18	ea	$ 800.00	$ 14,400
Mailboxes, FedEx boxes, etc	4	ea	NIC	
Umbrellas for café seating sets	18	ea	$ 200.00	$ 3,600
Flower kiosk	1	ea	$ 30,000.00	$ 30,000
Custom walls incorporating news stands	8	ea	$ 2,000.00	$ 16,000
			Subtotal	**$ 96,040**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	217	cy	$ 25.00	$ 5,425
Structural soil at $35/CY plus placement	217	cy	$ 45.00	$ 9,765
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 22,540**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	7,548	sf	$ 0	$ 1,887
Tree maintenance	7	ea	$ 24	$ 168
Landscaping	263	sf	$ 0	$ 32
Annual color	56	sf	$ 3	$ 168
			Subtotal	**$ 2,255**
TOTAL FOR NORTHWEST STREETSCAPE AREA				***$289,291.86***

CHARLES STREET AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Lighting Costs				
14' height acorn pole lights (plain)	5	ea	$ 2,500.00	$ 12,500
Twinkle lights in trees	4	ea	$ 800.00	$ 3,200
			Subtotal	**$ 15,700**

Landscaping costs				
Fine grading	132	sf	$ 1.00	$ 132
12" depth topsoil import and spreading for groundcover & shrubs	5	cy	$ 100.00	$ 500
3" gravel mulch under tree grates only	25	sf	$ 0.60	$ 15
3" depth bark mulch, including installation	132	sf	$ 0.60	$ 79
Weed control fabric, installed (Includes underneath tree grates)	182	sf	$ 0.50	$ 91
24" box trees (includes staking)	4	ea	$ 350.00	$ 1,400
1 gallon groundcover	33	ea	$ 9.00	$ 297
			Subtotal	**$ 2,514**
Concrete work				
2" AC Overlay	1,800	sf	$ 2.00	$ 3,600
Curb & Gutter	228	lf	$ 18.00	$ 4,104
New vehicular 6" concrete sidewalk w/color and tile inlays	120	sf	$ 12.00	$ 1,440
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	1,485	sf	$ 8.00	$ 11,880
			Subtotal	**$ 21,024**
Demolition				
Demo (E) Curb & Gutter	96	lf	$ 1.00	$ 96
Demo (E) Concrete sidewalk	512	sf	$ 1.00	$ 512
			Subtotal	**$ 1,218**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Metal tree grates 5' square, painted custom color	1	ea	$ 1,000.00	$ 1,000
			Subtotal	**$ 1,000**
Tree planting preparation costs				
3' depth excavation of area to receive structural soil incl. offhaul	178	cy	$ 25.00	$ 4,450
Structural soil at $35/CY plus placement	178	cy	$ 45.00	$ 8,010
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	220	lf	$ 35.00	$ 7,700
			Subtotal	**$ 20,160**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	1,485	sf	$ 0	$ 371
Tree maintenance	4	ea	$ 24	$ 96
Landscaping	132	sf	$ 0	$ 16
			Subtotal	**$ 483**
TOTAL FOR CHARLES STREET AREA				***$66,881.29***

ROUNDABOUT INTERSECTION AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Adjust (E) Storm Drainage	1	ls	$ 8,000.00	$ 8,000
Demo (E) Curb & Gutter	575	lf	$ 1.00	$ 575
Demo (E) Concrete sidewalk	7,700	sf	$ 1.00	$ 7,700
Adjust (E) Utility Rim to grade	6	ea	$ 1,000.00	$ 6,000
Demo (E) Concrete Paving	156	sy	$ 3.00	$ 468
Demo (E) Concrete sidewalk NIC		sy	$ 1.00	$ -
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 23,243**
Lighting Costs				
14' height acorn pole lights (plain)	16	ea	$ 2,500.00	$ 40,000
Twinkle lights in trees	5	ea	$ 800.00	$ 4,000
Uplighting for oak in roundabout	3	ea	$ 2,000.00	$ 6,000
			Subtotal	**$ 44,000**
Landscaping costs				
Fine grading	3,671	sf	$ 1.00	$ 3,671
12" depth topsoil import and spreading for groundcover & shrubs	136	cy	$ 100.00	$ 13,600
Planter mix and installation in pots	5	cy	$ 100.00	$ 500
3" gravel mulch under tree grates only	100	sf	$ 0.60	$ 60
3" depth bark mulch, including installation	3,671	sf	$ 0.60	$ 2,203
Weed control fabric, installed (Includes underneath tree grates)	3,771	sf	$ 0.50	$ 1,886
24" box trees (includes staking)	5	ea	$ 350.00	$ 1,750
1 gallon groundcover	917	ea	$ 9.00	$ 8,253
Annuals 4" pot	147	plants	$ 3.00	$ 441
			Subtotal	**$ 32,363**
Concrete work				
2" AC Overlay	10,513	sf	$ 1.00	$ 10,513

Curb & Gutter	680	lf	$ 18.00	$ 12,240
Curb & Gutter (Roundabout & Median Islands)	550	lf	$ 18.00	$ 9,900
Concrete Apron	42	cy	$ 200.00	$ 8,400
Concrete Island	444	sf	$ 12.00	$ 5,328
16" tall concrete seating modules with tile inserts but no cap	5	ea	$ 1,200.00	$ 6,000
14" tall seat walls with tile inserts	221	lf	$ 125.00	$ 27,625
2' tall concrete pilasters with tile inserts and cast stone caps	28	ea	$ 1,500.00	$ 42,000
New peach/pink colored sidewalks with blue-green tile inlays	8,673	sf	$ 8.00	$ 69,384
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	200	sf	$ 8.00	$ 1,600
Excluding AC overlay			**Subtotal**	**$ 192,990**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 15,000.00	$ 15,000
			Subtotal	**$ 15,000**
Site Furnishings				
Wood benches	1	ea	$ 2,000.00	$ 2,000
Artistic bike racks	7	ea	$ 800.00	$ 5,600
Drinking fountain, custom with stonework	1	ea	$ 4,000.00	$ 4,000
Clay pot (includes drainlines)	9	ea	$ 800.00	$ 7,200
3' tall ornamental steel fence	67	lf	$ 80.00	$ 5,360
Cast stone trash receptacles	4	ea	$ 1,000.00	$ 4,000
Cast stone recycle bins	4	ea	$ 2,000.00	$ 8,000
Metal tree grates 5' square, painted custom color	4	ea	$ 1,000.00	$ 4,000
Black metal café table and chair set	9	ea	$ 800.00	$ 7,200
Umbrellas for café seating sets	9	ea	$ 200.00	$ 1,800
Custom walls incorporating news stands	5	ea	$ 2,000.00	$ 10,000
			Subtotal	**$ 59,160**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	122	cy	$ 25.00	$ 3,050
Specimen oak tree for roundabout center	1	ea	$ 5,000.00	$ 5,000
Structural soil at $35/CY plus placement	122	cy	$ 45.00	$ 5,490
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	70	lf	$ 35.00	$ 2,450
			Subtotal	**$ 15,990**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	8,673	sf	$ 0	$ 2,168
Tree maintenance	13	ea	$ 24	$ 312
Landscaping	3,671	sf	$ 0	$ 441
Annual color	147	sf	$ 3	$ 441
			Subtotal	**$ 3,362**
TOTAL FOR ROUNDABOUT INTERSECTION AREA				***$387,107.87***

HENRY STREET AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	36	lf	$ 1.00	$ 36
Demo (E) Concrete sidewalk	212	sf	$ 1.00	$ 212
Small redwood to be removed	3	ea	$ 2,000.00	$ 6,000
Groundcover/shrub removal	270	sf	$ 0.30	$ 81
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 6,829**
Lighting Costs				
14' height acorn pole lights (plain)	5	ea	$ 2,500.00	$ 12,500
Twinkle lights in trees	4	ea	$ 800.00	$ 3,200
			Subtotal	**$ 15,700**
Landscaping costs				
Fine grading	270	sf	$ 1.00	$ 270
12" depth topsoil import and spreading for groundcover & shrubs	270	cy	$ 100.00	$ 27,000
Planter mix and installation in pots	1	cy	$ 100.00	$ 100
3" depth bark mulch, including installation	270	sf	$ 0.60	$ 162
Weed control fabric, installed (Includes underneath tree grates)	270	sf	$ 0.50	$ 135
24" box trees (includes staking)	4	ea	$ 350.00	$ 1,400
1 gallon groundcover	67	ea	$ 9.00	$ 603
Annuals 4" pot	8	plant	$ 3.00	$ 24
			Subtotal	**$ 29,694**
Concrete work				
2" AC Overlay	3,750	sf	$ 2.00	$ 7,500

Curb & Gutter	300	lf	$ 18.00	$ 5,400
New vehicular 6" concrete sidewalk w/color and tile inlays	335	sf	$ 12.00	$ 4,020
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	1,591	sf	$ 8.00	$ 12,728
			Subtotal	**$ 29,648**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Clay pots (includes drainlines)	2	ea	$ 800.00	$ 1,600
			Subtotal	**$ 1,600**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	89	cy	$ 25.00	$ 2,225
Structural soil at $35/CY plus placement	89	cy	$ 45.00	$ 4,005
Install 4" french drain(STR. 35 pipe) for trench, connect to storm drain	160	lf	$ 35.00	$ 5,600
			Subtotal	**$ 11,830**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	1,926	sf	$ 0	$ 482
Tree maintenance	4	ea	$ 24	$ 96
Landscaping	270	sf	$ 0	$ 32
Annual color	8	sf	$ 3	$ 24
			Subtotal	**$ 634**
TOTAL FOR HENRY STREET AREA				***$101,934.90***

SOUTHEAST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	94	lf	$ 1.00	$ 94
Demo (E) Concrete sidewalk	1,622	sf	$ 1.00	$ 1,622
Sycamore removal (Includes stump removal typ.)	1	ea	$ 1,500.00	$ 1,500
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 3,716**
Lighting Costs				
14' height acorn pole lights (plain)	4	ea	$ 2,500.00	$ 10,000
Twinkle lights in trees	5	ea	$ 800.00	$ 4,000
			Subtotal	**$ 14,000**
Landscaping costs				
Fine grading	200	sf	$ 1.00	$ 200
12" depth topsoil import and spreading for groundcover & shrubs	8	cy	$ 100.00	$ 800
Planter mix and installation in pots	1	cy	$ 100.00	$ 100
Weed control fabric, installed (Includes underneath tree grates)	200	sf	$ 0.50	$ 100
1 gallon groundcover	50	ea	$ 9.00	$ 450
			Subtotal	**$ 1,650**
Concrete work				
2" AC Overlay	2,400	sf	$ 1.00	$ 2,400
Curb & Gutter	183	lf	$ 18.00	$ 3,294
New peach/pink colored sidewalks with blue-green tile inlays	544	sf	$ 8.00	$ 4,352
New vehicular 6" concrete sidewalk w/color and tile inlays	216	sf	$ 12.00	$ 2,592
Excluding AC overlay			**Subtotal**	**$ 10,238**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Tree planting preparation costs (Under sidewalk near redwood trees)				
3' depth excavation of area to receive structural soil incl. offhaul	89	cy	$ 25.00	$ 2,225
Structural soil at $35/CY plus placement	89	cy	$ 45.00	$ 4,005
			Subtotal	**$ 6,230**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	544	sf	$ 0	$ 82
Tree maintenance	10	ea	$ 24	$ 240
Landscaping	200	sf	$ 0	$ 24
			Subtotal	**$ 346**
TOTAL FOR SOUTHEAST STREETSCAPE AREA				***$42,179.60***

SOUTHWEST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Adjust (E) Utility Rim to grade	1	ea	$ 1,000.00	$ 1,000
Demo (E) Curb & Gutter	94	lf	$ 1.00	$ 94
Demo (E) Concrete sidewalk	1,622	sf	$ 1.00	$ 1,622
Pear tree removal	2	ea	$ 400.00	$ 800
Pear "boxes" to be removed NIC	2	ea	$ 400.00	$ 800
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 4,816**
Lighting Costs				
14' height acorn pole lights (plain)	3	ea	$ 2,500.00	$ 7,500
Twinkle lights in trees	2	ea	$ 800.00	$ 1,600
			Subtotal	**$ 9,100**
Landscaping costs				
Fine grading	250	sf	$ 1.00	$ 250
12" depth topsoil import and spreading for groundcover & shrubs	9	cy	$ 100.00	$ 900
Planter mix and installation in pots	3	cy	$ 100.00	$ 300
3" gravel mulch under tree grates only	50	sf	$ 0.60	$ 30
3" depth bark mulch, including installation	250	sf	$ 0.60	$ 150
Weed control fabric, installed (Includes underneath tree grates)	250	sf	$ 0.50	$ 125
24" box trees (includes staking)	2	ea	$ 350.00	$ 700
1 gallon groundcover	62	ea	$ 9.00	$ 558
Annuals 4" pot	24	plant	$ 3.00	$ 72
			Subtotal	**$ 3,085**
Concrete work				
2" AC Overlay	2,307	sf	$ 1.00	$ 2,307
Curb & Gutter	195	lf	$ 18.00	$ 3,510
New peach/pink colored sidewalks with blue-green tile inlays	2,092	sf	$ 8.00	$ 16,736
New vehicular 6" concrete sidewalk w/color and tile inlays	800	sf	$ 12.00	$ 9,600
Special paving to encourage window shopping	54	sf	$ 20.00	$ 1,080
Excluding AC overlay			**Subtotal**	**$ 30,926**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Wood benches	2	ea	$ 2,000.00	$ 4,000
Artistic bike racks	1	ea	$ 800.00	$ 800
Clay pot (includes drainlines)	6	ea	$ 800.00	$ 4,800
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Metal tree grates 5' square, painted custom color	11	ea	$ 1,000.00	$ 11,000
			Subtotal	**$ 23,600**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	114	cy	$ 25.00	$ 2,850
Structural soil at $35/CY plus placement	114	cy	$ 45.00	$ 5,130
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 15,330**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 2 months	2,092	sf	$ 0	$ 314
Landscaping	250	sf	$ 0	$ 30
Tree maintenance	2	ea	$ 24	$ 48
Annual color	24	sf	$ 3	$ 72
			Subtotal	**$ 464**
TOTAL FOR SOUTHWEST STREETSCAPE AREA				***$93,320.80***

BRIDGE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) curb & gutter	100	lf	$ 1.00	$ 100
Demo (E) Concrete sidewalk	1,600	sf	$ 1.00	$ 1,600
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500

				$ 2,200
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	33	cy	$ 25.00	$ 825
Structural soil at $35/CY plus placement	33	cy	$ 45.00	$ 1,485
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	50	lf	$ 35.00	$ 1,750
				$ 4,060
Bridge modification costs				
Remove/ paint/ replace existing metal railing and posts	1	ls	$ 10,000	$ 10,000
Custom concrete lighted sentinels at bridge	4	ea	$ 6,500	$ 26,000
Patch/add existing 4" concrete sidewalk w/ peach colored pavement	1,072	sf	$ 8.00	$ 8,576
Move fire hydrant	1	ea	3000	$ 3,000
				$ 47,576
TOTAL FOR BRIDGE AREA				***$54,836.00***

Project Cost Estimate - Alternate 2B-Jazz Musician Roundabout Intersection

Project Name: Walkable Cotati Phase 1
Project Owner: City of Cotati
Project Location: Cotati, CA

Project No.: E99-7
Estimated by: Fisher/Wise
Checked by: Bertolero
Date: Jan. 8, 2001

Summary

Mobilization	$	50,000
Tree and root pruning and structural soil	$	110,875
North Entry Traffic Calming	$	208,915
Northeast Streetscape	$	271,107
Northwest Streetscape	$	289,292
Charles Street (Including AC overlay)	$	66,881
Henry Street (Including AC overlay)		$101,934.90
Roundabout Intersection	$	431,095
Southeast Streetscape	$	42,180
Southwest Streetscape	$	93,321
Bridge Area	$	54,836
AC Overlay (From E. Cotati to bridge, excluding Henry and Charles Streets)	$	79,000
Subtotal	$	1,799,436
Contingencies (25%)	$	449,859
Public involvement, studies, engineering (15%)	$	269,915
Construction-related support services (12%)	$	215,932
Total	**$**	**2,735,143**

Base Project Summary

Note: Items include contingencies

Mobilization	$	25,000
Jazz Musician roundabout	$	258,239
Tree and root pruning and structural soil	$	138,594
Repair additional uprooted sidewalk	$	37,500
AC Overlay	$	50,448
Total (excluding studies/engineering)	**$**	**509,780**

Item	Quantity	Units	Engineering Estimate	
			Unit Cost	Total
TREE AND ROOT PRUNING & SOIL PREP. (For 14 sycamores and 1 redwood)				
3' depth excavation of area to receive structural soil incl. offhaul	350	cy	$ 25.00	$ 8,750
Pneumatic excavation of root zone of existing trees	15	ea	$ 1,000.00	$ 15,000
Root pruning	15	ea	$ 150.00	$ 2,250
Crown reduction	15	ea	$ 500.00	$ 7,500
Structural soil at $35/CY plus placement	350	cy	$ 45.00	$ 15,750
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	400	lf	$ 35.00	$ 14,000
Patch/add existing 4" concrete sidewalk w/ lamp black and hand seeded aggregat	2,550	sf	$ 8.00	$ 20,400
Twinkle lights in trees	15	ea	$ 800.00	$ 12,000
3" gravel mulch under tree grates only	375	sf	$ 0.60	$ 225
Metal tree grates 5' square, painted custom color	15	ea	$ 1,000.00	$ 15,000
			Subtotal	**110,875.00**
NORTH ENTRY TRAFFIC CALMING				
Pedestrian barriers and control	1	allow	$ 1,500.00	**$ 1,500**
Demolition				
Adjust (E) Utility Rim to grade	3	ea	$ 1,000.00	$ 3,000
Demo (E) Curb & Gutter	341	lf	$ 1.00	$ 341
Demo (E) Concrete Paving	350	sf	$ 3.00	$ 1,050
Demo (E) Concrete sidewalk	4,248	sf	$ 1.00	$ 4,248
Sycamore removal (Includes stump removal typ.)	4	ea	$ 1,500.00	$ 6,000
			Subtotal	**$ 14,639**
Lighting Costs				
14' height acorn pole lights (plain)	18	ea	$ 2,500.00	$ 45,000
Sentinel light in median	1	ea	$ 7,500.00	$ 7,500
			Subtotal	**$ 52,500**
Landscaping costs				
Fine grading	1,279	sf	$ 1.00	$ 1,279
12" depth topsoil import and spreading for groundcover & shrubs	47	cy	$ 100.00	$ 4,700
Planter mix and installation in pots	8	cy	$ 100.00	$ 800
3" gravel mulch under tree grates only	50	sf	$ 0.60	$ 30
3" depth bark mulch, including installation	1,179	sf	$ 0.60	$ 707
Weed control fabric, installed (Includes underneath tree grates)	1,179	sf	$ 0.50	$ 590
24" box trees (includes staking)	6	ea	$ 350.00	$ 2,100
New lawn in plaza	115	sf	$ 1.00	$ 115
1 gallon groundcover	294	ea	$ 9.00	$ 2,646
Annuals 4" pot	637	plant	$ 3.00	$ 1,911
			Subtotal	**$ 14,878**
Concrete work				
Curb & Gutter	650	lf	$ 18.00	$ 11,700
Curb & Gutter (Center Island)	144	lf	$ 15.00	$ 2,160
2" Ac Overlay	12,812	sf	$ 1.00	$ 12,812
14" tall seat walls with tile inserts	34	lf	$ 125.00	$ 4,250
2' tall concrete pilasters with tile inserts and cast stone caps (Roundabout NIC)	4	ea	$ 1,500.00	$ 6,000
New peach/pink colored sidewalks with blue-green tile inlays	3,110	sf	$ 8.00	$ 24,880
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	2,031	sf	$ 8.00	$ 16,248
Special paving to encourage window shopping	114	sf	$ 20.00	$ 2,280
Excluding AC overlay			**Subtotal**	**$ 67,518**

Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), spray irrigation system for shrubs/groundcovers/pots water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Wood benches	1	ea	$ 2,000.00	$ 2,000
Artistic bike racks	3	ea	$ 800.00	$ 2,400
Clay pot (includes drainlines)	8	ea	$ 800.00	$ 6,400
Cast stone trash receptacles	2	ea	$ 1,000.00	$ 2,000
Cast stone recycle bins	2	ea	$ 2,000.00	$ 4,000
Cast stone ash urns	2	ea	$ 1,000.00	$ 2,000
Metal tree grates 5' square, painted custom color	3	ea	$ 1,000.00	$ 3,000
			Subtotal	**$ 21,800**
Tree planting preparation costs				
3' depth excavation of area to receive structural soil incl. offhaul	339	cy	$ 25.00	$ 8,475
Structural soil at $35/CY plus placement	339	cy	$ 45.00	$ 15,255
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 31,080**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	5,141	sf	$ 0	$ 1,285
Landscaping	1,504	sf	$ 0	$ 180
Annual color	325	sf	$ 3	$ 975
			Subtotal	**$ 2,441**
TOTAL FOR NORTH ENTRY TRAFFIC CALMING AREA				***$ 208,915***

NORTHEAST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	$ **1,000**
Demolition				
Demo (E) Curb & Gutter	291	lf	$ 1.00	$ 291
Demo (E) Concrete sidewalk	4,520	sf	$ 1.00	$ 4,520
Pear tree removal	1	ea	$ 400.00	$ 400
Pear "boxes" to be removed NIC	1	ea	$ 400.00	$ 400
Groundcover/shrub removal	240	sf	$ 0.30	$ 72
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	$ **6,183**
Lighting Costs				
14' height acorn pole lights (plain)	9	ea	$ 2,500.00	$ 22,500
Twinkle lights in trees	7	ea	$ 800.00	$ 5,600
			Subtotal	$ **28,100**
Landscaping costs				
Fine grading	252	sf	$ 1.00	$ 252
12" depth topsoil import and spreading for groundcover & shrubs	9	cy	$ 100.00	$ 900
Planter mix and installation in pots	7	cy	$ 100.00	$ 700
3" gravel mulch under tree grates only	25	sf	$ 0.60	$ 15
3" depth bark mulch, including installation	252	sf	$ 0.60	$ 151
Weed control fabric, installed (Includes underneath tree grates)	277	sf	$ 0.50	$ 139
24" box trees (includes staking)	7	ea	$ 350.00	$ 2,450
1 gallon groundcover	50	ea	$ 9.00	$ 450
Annuals 4" pot	52	plants	$ 3.00	$ 156
			Subtotal	$ **5,213**
Concrete work				
2" AC Overlay	6,275	sf	$ 1.00	$ 6,275
Curb & Gutter	406	lf	$ 18.00	$ 7,308
14" tall seat walls with tile inserts	22	lf	$ 125.00	$ 2,750
2' tall concrete pilasters with tile inserts and cast stone caps (Roundabout NIC)	3	ea	$ 1,500.00	$ 4,500
Small street fountain, 6' diameter, 16 ' tall w/ cast stone cap & tile inserts	1	ea	$ 20,000.00	$ 20,000
New peach/pink colored sidewalks with blue-green tile inlays	6,330	sf	$ 8.00	$ 50,640
New vehicular 6" concrete sidewalk w/color and tile inlays	100	sf	$ 12.00	$ 1,200
Special sidewalk for window shopping	390	sf	$ 8.00	$ 3,120
Excluding AC overlay			**Subtotal**	$ **89,518**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells),				
system for shrubs/groundcovers/pots, water meters.	1	allow	$ 10,000.00	$ 10,000
			Subtotal	$ **10,000**
Site Furnishings				
Artistic bike racks	1	ea	$ 800.00	$ 800
Metal pedestrian passageway enhancements-large, aluminum	2	ea	$ 7,000.00	$ 14,000
Metal pedestrian passageway enhancement-lsmall, aluminum	1	ea	$ 3,500.00	$ 3,500
Clay pot (includes drainlines)	13	ea	$ 800.00	$ 10,400
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
3' tall ornamental steel fence	152	lf	$ 80.00	$ 12,160
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Cast stone ash urns	1	ea	$ 1,000.00	$ 1,000
Metal tree grates 5' square, painted custom color	1	ea	$ 1,000.00	$ 1,000
Black metal café table and chair set	63	ea	$ 800.00	$ 50,400
Umbrellas for café seating sets	23	ea	$ 200.00	$ 4,600
Custom walls incorporating news stands	1	ea	$ 2,000.00	$ 2,000
			Subtotal	$ **102,860**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	264	cy	$ 25.00	$ 6,600
Structural soil at $35/CY plus placement	264	cy	$ 45.00	$ 11,880
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	220	lf	$ 35.00	$ 7,700
			Subtotal	$ **26,180**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	6,820	sf	$ 0	$ 1,705
Tree maintenance	7	ea	$ 24	$ 168
Landscaping	200	sf	$ 0	$ 24
Annual color	52	sf	$ 3	$ 156
			Subtotal	$ **2,053**
TOTAL FOR NORTHEAST STREETSCAPE AREA				***271,106.70***

NORTHWEST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	272	lf	$ 1.00	$ 272
Demo (E) Concrete sidewalk	5,260	sf	$ 1.00	$ 5,260
Groundcover/shrub removal	50	sf	$ 0.30	$ 15
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 6,047**
Lighting Costs				
14' height acorn pole lights (plain)	9	ea	$ 2,500.00	$ 22,500
			Subtotal	**$ 22,500**
Landscaping costs				
Fine grading	263	sf	$ 1.00	$ 263
12" depth topsoil import and spreading for groundcover & shrubs	263	cy	$ 100.00	$ 26,300
Planter mix and installation in pots	7	cy	$ 100.00	$ 700
3" depth bark mulch, including installation	263	sf	$ 0.60	$ 158
Weed control fabric, installed (Includes underneath tree grates)	263	sf	$ 0.50	$ 132
24" box trees (includes staking)	7	ea	$ 350.00	$ 2,450
1 gallon groundcover	66	ea	$ 9.00	$ 594
Annuals 4" pot	56	plant	$ 3.00	$ 168
			Subtotal	**$ 30,764**
Concrete work				
2" AC Overlay	6,051	sf	$ 1.00	$ 6,051
Curb & Gutter	409	lf	$ 18.00	$ 7,362
Passageway enhancement:4' tall concrete pilasters w/ tile inlay& tubular steel	1	ea	$ 30,000.00	$ 30,000
New peach/pink colored sidewalks with blue-green tile inlays	7,448	sf	$ 8.00	$ 59,584
New vehicular 6" concrete sidewalk w/color and tile inlays	100	sf	$ 12.00	$ 1,200
Excluding AC overlay			**Subtotal**	**$ 98,146**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells),				
system for shrubs/groundcovers/pots, water meters.	1	allow	$ 10,000.00	$ 10,000
			Subtotal	**$ 10,000**
Site Furnishings				
Wood benches	3	ea	$ 2,000.00	$ 6,000
Artistic bike racks	2	ea	$ 800.00	$ 1,600
3' tall ornamental steel fence	128	lf	$ 80.00	$ 10,240
Clay pot (includes drainlines)	14	ea	$ 800.00	$ 11,200
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Black metal café table and chair set	18	ea	$ 800.00	$ 14,400
Mailboxes, FedEx boxes, etc	4	ea	NIC	
Umbrellas for café seating sets	18	ea	$ 200.00	$ 3,600
Flower kiosk	1	ea	$ 30,000.00	$ 30,000
Custom walls incorporating news stands	8	ea	$ 2,000.00	$ 16,000
			Subtotal	**$ 96,040**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	217	cy	$ 25.00	$ 5,425
Structural soil at $35/CY plus placement	217	cy	$ 45.00	$ 9,765
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 22,540**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	7,548	sf	$ 0	$ 1,887
Tree maintenance	7	ea	$ 24	$ 168
Landscaping	263	sf	$ 0	$ 32
Annual color	56	sf	$ 3	$ 168
			Subtotal	**$ 2,255**
TOTAL FOR NORTHWEST STREETSCAPE AREA				***$289,291.86***

CHARLES STREET AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Lighting Costs				
14' height acorn pole lights (plain)	5	ea	$ 2,500.00	$ 12,500
Twinkle lights in trees	4	ea	$ 800.00	$ 3,200
			Subtotal	**$ 15,700**

Landscaping costs				
Fine grading	132	sf	$ 1.00	$ 132
12" depth topsoil import and spreading for groundcover & shrubs	5	cy	$ 100.00	$ 500
3" gravel mulch under tree grates only	25	sf	$ 0.60	$ 15
3" depth bark mulch, including installation	132	sf	$ 0.60	$ 79
Weed control fabric, installed (Includes underneath tree grates)	182	sf	$ 0.50	$ 91
24" box trees (includes staking)	4	ea	$ 350.00	$ 1,400
1 gallon groundcover	33	ea	$ 9.00	$ 297
			Subtotal	**$ 2,514**
Concrete work				
2" AC Overlay	1,800	sf	$ 2.00	$ 3,600
Curb & Gutter	228	lf	$ 18.00	$ 4,104
New vehicular 6" concrete sidewalk w/color and tile inlays	120	sf	$ 12.00	$ 1,440
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	1,485	sf	$ 8.00	$ 11,880
			Subtotal	**$ 21,024**
Demolition				
Demo (E) Curb & Gutter	96	lf	$ 1.00	$ 96
Demo (E) Concrete sidewalk	512	sf	$ 1.00	$ 512
			Subtotal	**$ 608**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Metal tree grates 5' square, painted custom color	1	ea	$ 1,000.00	$ 1,000
			Subtotal	**$ 1,000**
Tree planting preparation costs				
3' depth excavation of area to receive structural soil incl. offhaul	178	cy	$ 25.00	$ 4,450
Structural soil at $35/CY plus placement	178	cy	$ 45.00	$ 8,010
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	220	lf	$ 35.00	$ 7,700
			Subtotal	**$ 20,160**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	1,485	sf	$ 0	$ 371
Tree maintenance	4	ea	$ 24	$ 96
Landscaping	132	sf	$ 0	$ 16
			Subtotal	**$ 483**
TOTAL FOR CHARLES STREET AREA				***$66,881.29***

JAZZ MUSICIAN ROUNDABOUT INTERSECTION AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Adjust (E) Storm Drainage	1	ls	$ 8,000.00	$ 8,000
Demo (E) Curb & Gutter	575	lf	$ 1.00	$ 575
Demo (E) Concrete sidewalk	7,700	sf	$ 1.00	$ 7,700
Adjust (E) Utility Rim to grade	6	ea	$ 1,000.00	$ 6,000
Demo (E) Concrete Paving	156	sy	$ 3.00	$ 468
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 23,243**
Lighting Costs				
14' height acorn pole lights (plain)	16	ea	$ 2,500.00	$ 40,000
Uplighting for jazz sculpture	4	ea	$ 2,000.00	$ 8,000
Twinkle lights in trees	5	ea	$ 800.00	$ 4,000
			Subtotal	**$ 52,000**
Landscaping costs				
Fine grading	3,671	sf	$ 1.00	$ 3,671
12" depth topsoil import and spreading for groundcover & shrubs	136	cy	$ 100.00	$ 13,600
Planter mix and installation in pots	5	cy	$ 100.00	$ 500
3" gravel mulch under tree grates only	100	sf	$ 0.60	$ 60
3" depth bark mulch, including installation	3,671	sf	$ 0.60	$ 2,203
Weed control fabric, installed (Includes underneath tree grates)	3,771	sf	$ 0.50	$ 1,886
24" box trees (includes staking)	5	ea	$ 350.00	$ 1,750
1 gallon groundcover	917	ea	$ 9.00	$ 8,253
Annuals 4" pot	147	plants	$ 3.00	$ 441
			Subtotal	**$ 32,363**
Concrete work				
2" AC Overlay	10,513	sf	$ 1.00	$ 10,513

Curb & Gutter	680	lf	$ 18.00	$ 12,240
Curb & Gutter (Roundabout & Median Islands)	550	lf	$ 18.00	$ 9,900
Concrete Apron	42	cy	$ 200.00	$ 8,400
Concrete Island	444	sf	$ 12.00	$ 5,328
16" tall concrete seating modules with tile inserts but no cap	5	ea	$ 1,200.00	$ 6,000
5' tall pedestal for sculpture	1	ea	$ 8,000.00	$ 8,000
New jazz sculpture	1	ea	$ 30,000.00	$ 30,000
3' tall pilasters withtile inlays	6	ea	$ 1,500.00	$ 9,000
2' tall walls with tile inlays	36	lf	$ 125.00	$ 4,500
14" tall seat walls with tile inserts	221	lf	$ 125.00	$ 27,625
2' tall concrete pilasters with tile inserts and cast stone caps	28	ea	$ 1,500.00	$ 42,000
New peach/pink colored sidewalks with blue-green tile inlays	8,673	sf	$ 8.00	$ 69,384
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	200	sf	$ 8.00	$ 1,600
Excluding AC overlay			**Subtotal**	**$ 233,977**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells),				
system for shrubs/groundcovers/pots, water meters.	1	allow	$ 15,000.00	$ 15,000
			Subtotal	**$ 15,000**
Site Furnishings				
Wood benches	1	ea	$ 2,000.00	$ 2,000
Artistic bike racks	7	ea	$ 800.00	$ 5,600
Drinking fountain, custom with stonework	1	ea	$ 4,000.00	$ 4,000
Clay pot (includes drainlines)	9	ea	$ 800.00	$ 7,200
3' tall ornamental steel fence	67	lf	$ 80.00	$ 5,360
Cast stone trash receptacles	4	ea	$ 1,000.00	$ 4,000
Cast stone recycle bins	4	ea	$ 2,000.00	$ 8,000
Metal tree grates 5' square, painted custom color	4	ea	$ 1,000.00	$ 4,000
Black metal café table and chair set	9	ea	$ 800.00	$ 7,200
Umbrellas for café seating sets	9	ea	$ 200.00	$ 1,800
Custom walls incorporating news stands	5	ea	$ 2,000.00	$ 10,000
			Subtotal	**$ 59,160**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	122	cy	$ 25.00	$ 3,050
Structural soil at $35/CY plus placement	122	cy	$ 45.00	$ 5,490
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	70	lf	$ 35.00	$ 2,450
			Subtotal	**$ 10,990**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	8,673	sf	$ 0	$ 2,168
Tree maintenance	13	ea	$ 24	$ 312
Landscaping	3,671	sf	$ 0	$ 441
Annual color	147	sf	$ 3	$ 441
			Subtotal	**$ 3,362**
TOTAL FOR ROUNDABOUT INTERSECTION AREA				***$431,094.87***

HENRY STREET AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	36	lf	$ 1.00	$ 36
Demo (E) Concrete sidewalk	212	sf	$ 1.00	$ 212
Small redwood to be removed	3	ea	$ 2,000.00	$ 6,000
Groundcover/shrub removal	270	sf	$ 0.30	$ 81
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 6,829**
Lighting Costs				
14' height acorn pole lights (plain)	5	ea	$ 2,500.00	$ 12,500
Twinkle lights in trees	4	ea	$ 800.00	$ 3,200
			Subtotal	**$ 15,700**
Landscaping costs				
Fine grading	270	sf	$ 1.00	$ 270
12" depth topsoil import and spreading for groundcover & shrubs	270	cy	$ 100.00	$ 27,000
Planter mix and installation in pots	1	cy	$ 100.00	$ 100
3" depth bark mulch, including installation	270	sf	$ 0.60	$ 162
Weed control fabric, installed (Includes underneath tree grates)	270	sf	$ 0.50	$ 135
24" box trees (includes staking)	4	ea	$ 350.00	$ 1,400
1 gallon groundcover	67	ea	$ 9.00	$ 603
Annuals 4" pot	8	plant	$ 3.00	$ 24

			Subtotal	**$ 29,694**
Concrete work				
2" AC Overlay	3,750	sf	$ 2.00	$ 7,500
Curb & Gutter	300	lf	$ 18.00	$ 5,400
New vehicular 6" concrete sidewalk w/color and tile inlays	335	sf	$ 12.00	$ 4,020
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	1,591	sf	$ 8.00	$ 12,728
			Subtotal	**$ 29,648**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells),				
system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Clay pots (includes drainlines)	2	ea	$ 800.00	$ 1,600
			Subtotal	**$ 1,600**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	89	cy	$ 25.00	$ 2,225
Structural soil at $35/CY plus placement	89	cy	$ 45.00	$ 4,005
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	160	lf	$ 35.00	$ 5,600
			Subtotal	**$ 11,830**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	1,926	sf	$ 0	$ 482
Tree maintenance	4	ea	$ 24	$ 96
Landscaping	270	sf	$ 0	$ 32
Annual color	8	sf	$ 3	$ 24
			Subtotal	**$ 634**
TOTAL FOR HENRY STREET AREA				***$101,934.90***

SOUTHEAST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) Curb & Gutter	94	lf	$ 1.00	$ 94
Demo (E) Concrete sidewalk	1,622	sf	$ 1.00	$ 1,622
Sycamore removal (Includes stump removal typ.)	1	ea	$ 1,500.00	$ 1,500
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 3,716**
Lighting Costs				
14' height acorn pole lights (plain)	4	ea	$ 2,500.00	$ 10,000
Twinkle lights in trees	5	ea	$ 800.00	$ 4,000
			Subtotal	**$ 14,000**
Landscaping costs				
Fine grading	200	sf	$ 1.00	$ 200
12" depth topsoil import and spreading for groundcover & shrubs	8	cy	$ 100.00	$ 800
Planter mix and installation in pots	1	cy	$ 100.00	$ 100
Weed control fabric, installed (Includes underneath tree grates)	200	sf	$ 0.50	$ 100
1 gallon groundcover	50	ea	$ 9.00	$ 450
			Subtotal	**$ 1,650**
Concrete work				
2" AC Overlay	2,400	sf	$ 1.00	$ 2,400
Curb & Gutter	183	lf	$ 18.00	$ 3,294
New peach/pink colored sidewalks with blue-green tile inlays	544	sf	$ 8.00	$ 4,352
New vehicular 6" concrete sidewalk w/color and tile inlays	216	sf	$ 12.00	$ 2,592
Excluding AC overlay			**Subtotal**	**$ 10,238**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells),				
system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Tree planting preparation costs (Under sidewalk near redwood trees)				
3' depth excavation of area to receive structural soil incl. offhaul	89	cy	$ 25.00	$ 2,225
Structural soil at $35/CY plus placement	89	cy	$ 45.00	$ 4,005
			Subtotal	**$ 6,230**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	544	sf	$ 0	$ 82
Tree maintenance	10	ea	$ 24	$ 240
Landscaping	200	sf	$ 0	$ 24

			Subtotal	$ 346
TOTAL FOR SOUTHEAST STREETSCAPE AREA				*$42,179.60*

SOUTHWEST STREETSCAPE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Adjust (E) Utility Rim to grade	1	ea	$ 1,000.00	$ 1,000
Demo (E) Curb & Gutter	94	lf	$ 1.00	$ 94
Demo (E) Concrete sidewalk	1,622	sf	$ 1.00	$ 1,622
Pear tree removal	2	ea	$ 400.00	$ 800
Pear "boxes" to be removed NIC	2	ea	$ 400.00	$ 800
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 4,816**
Lighting Costs				
14' height acorn pole lights (plain)	3	ea	$ 2,500.00	$ 7,500
Twinkle lights in trees	2	ea	$ 800.00	$ 1,600
			Subtotal	**$ 9,100**
Landscaping costs				
Fine grading	250	sf	$ 1.00	$ 250
12" depth topsoil import and spreading for groundcover & shrubs	9	cy	$ 100.00	$ 900
Planter mix and installation in pots	3	cy	$ 100.00	$ 300
3" gravel mulch under tree grates only	50	sf	$ 0.60	$ 30
3" depth bark mulch, including installation	250	sf	$ 0.60	$ 150
Weed control fabric, installed (Includes underneath tree grates)	250	sf	$ 0.50	$ 125
24" box trees (includes staking)	2	ea	$ 350.00	$ 700
1 gallon groundcover	62	ea	$ 9.00	$ 558
Annuals 4" pot	24	plant	$ 3.00	$ 72
			Subtotal	**$ 3,085**
Concrete work				
2" AC Overlay	2,307	sf	$ 1.00	$ 2,307
Curb & Gutter	195	lf	$ 18.00	$ 3,510
New peach/pink colored sidewalks with blue-green tile inlays	2,092	sf	$ 8.00	$ 16,736
New vehicular 6" concrete sidewalk w/color and tile inlays	800	sf	$ 12.00	$ 9,600
Special paving to encourage window shopping	54	sf	$ 20.00	$ 1,080
Excluding AC overlay			**Subtotal**	**$ 30,926**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells),				
system for shrubs/groundcovers/pots, water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**
Site Furnishings				
Wood benches	2	ea	$ 2,000.00	$ 4,000
Artistic bike racks	1	ea	$ 800.00	$ 800
Clay pot (includes drainlines)	6	ea	$ 800.00	$ 4,800
Cast stone trash receptacles	1	ea	$ 1,000.00	$ 1,000
Cast stone recycle bins	1	ea	$ 2,000.00	$ 2,000
Metal tree grates 5' square, painted custom color	11	ea	$ 1,000.00	$ 11,000
			Subtotal	**$ 23,600**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	114	cy	$ 25.00	$ 2,850
Structural soil at $35/CY plus placement	114	cy	$ 45.00	$ 5,130
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 15,330**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 2 months	2,092	sf	$ 0	$ 314
Landscaping	250	sf	$ 0	$ 30
Tree maintenance	2	ea	$ 24	$ 48
Annual color	24	sf	$ 3	$ 72
			Subtotal	**$ 464**
TOTAL FOR SOUTHWEST STREETSCAPE AREA				*$93,320.80*

BRIDGE AREA				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) curb & gutter	100	lf	$ 1.00	$ 100

Demo (E) Concrete sidewalk	1,600	sf	$ 1.00	$ 1,600
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 2,200**
Tree planting preparation costs (For ex. sycamore tree)				
3' depth excavation of area to receive structural soil incl. offhaul	33	cy	$ 25.00	$ 825
Structural soil at $35/CY plus placement	33	cy	$ 45.00	$ 1,485
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	50	lf	$ 35.00	$ 1,750
			Subtotal	**$ 4,060**
Bridge modification costs				
Remove/ paint/ replace existing metal railing and posts	1	ls	$ 10,000	$ 10,000
Custom concrete lighted sentinels at bridge	4	ea	$ 6,500	$ 26,000
Patch/add existing 4" concrete sidewalk w/ peach colored pavement	1,072	sf	$ 8.00	$ 8,576
Move fire hydrant	1	ea	$ 3,000	$ 3,000
				$ 47,576
TOTAL FOR BRIDGE AREA				***$54,836.00***

Project Cost Estimate - Alternate 3a
SUMMARY

Base Project: Traffic calming north & south, tree repairs, plus additional $35,000 for overlay on Old Redwood Highway

Project Name: Walkable Cotati Phase 1
Project Owner: City of Cotati
Project Location: Cotati, CA

Project No.:	E99-7
Estimated by:	Fisher/Wise
Checked by:	Bertolero
Date:	1/8/01

Base Project Summary

Mobilization	$	25,000
Intersection improvements		NIC
Existing tree root pruning and structural soil*	$	138,594
Repair additional uprooted sidewalk	$	37,500
AC Overlay-La Plaza to Park Ave., excluding Henry and Charles Streets	$	118,750
North Entry traffic calming*	$	134,631
Bridge Area Modifications*	$	62,220
Total (excluding studies/engineering)	**$**	**516,695**

*See detail on following pages

Project Cost Estimate - Alternate 3a
DETAIL

Item	Quantity	Units	Engineering Estimate	
			Unit Cost	Total
EXISTING TREE ROOT PRUNING AND STRUCTURAL SOIL (for 14 sycamores and 1 redwood)				
3' depth excavation of area to receive structural soil incl. offhaul	350	cy	$ 25.00	$ 8,750
Pneumatic excavation of root zone of existing trees	15	ea	$ 1,000.00	$ 15,000
Root pruning	15	ea	$ 150.00	$ 2,250
Crown reduction	15	ea	$ 500.00	$ 7,500
Structural soil at $35/CY plus placement	350	cy	$ 45.00	$ 15,750
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	400	lf	$ 35.00	$ 14,000
Patch/add existing 4" concrete sidewalk w/ lamp black, hand seeded aggregate	2,550	sf	$ 8.00	$ 20,400
Twinkle lights in trees	15	ea	$ 800.00	$ 12,000
3" gravel mulch under tree grates only	375	sf	$ 0.60	$ 225
Metal tree grates 5' square, painted custom color	15	ea	$ 1,000.00	$ 15,000
			Subtotal	**110,875**
25% contingency				**27,719**
TOTAL FOR EXISTING TREE ROOT PRUNING. ETC.			**TOTAL**	**138,594**
NORTH ENTRY TRAFFIC CALMING				
Pedestrian barriers and control	1	allow	$ 1,500.00	**$ 1,500**
Demolition				
Adjust (E) Utility Rim to grade	3	ea	$ 1,000.00	$ 3,000
Demo (E) Curb & Gutter	341	lf	$ 1.00	$ 341
Demo (E) Concrete Paving	350	sf	$ 3.00	$ 1,050
Demo (E) Concrete sidewalk	4,248	sf	$ 1.00	$ 4,248
Sycamore removal (Includes stump removal typ.)	4	ea	$ 1,500.00	$ 6,000
			Subtotal	**$ 14,639**
Lighting Costs				
14' height acorn pole lights (plain)	18	ea	$ 2,500.00	**NIC**
Sentinel light in median	1	ea	$ 7,500.00	$ 7,500
			Subtotal	**$ 7,500**
Landscaping costs				
Fine grading	1,279	sf	$ 1.00	$ 1,279
12" depth topsoil import and spreading for groundcover & shrubs	47	cy	$ 100.00	$ 4,700
Planter mix and installation in pots	8	cy	$ 100.00	$ 800
3" gravel mulch under tree grates only	50	sf	$ 0.60	$ 30
3" depth bark mulch, including installation	1,179	sf	$ 0.60	$ 707
Weed control fabric, installed (Includes underneath tree grates)	1,179	sf	$ 0.50	$ 590
24" box trees (includes staking)	6	ea	$ 350.00	$ 2,100
New lawn in plaza	115	sf	$ 1.00	$ 115
1 gallon groundcover	294	ea	$ 9.00	$ 2,646
Annuals 4" pot	637	plant	$ 3.00	$ 1,911
			Subtotal	**$ 14,878**
Concrete work				
Curb & Gutter	650	lf	$ 18.00	$ 11,700
Curb & Gutter (Center Island)	144	lf	$ 15.00	$ 2,160
2" Ac Overlay	12,812	sf	$ 1.00	**NIC**
14" tall seat walls with tile inserts	34	lf	$ 125.00	**NIC**
2' tall concrete pilasters with tile inserts and cast stone caps (Roundabout NIC)	4	ea	$ 1,500.00	**NIC**
New peach/pink colored sidewalks with blue-green tile inlays	3,110	sf	$ 8.00	**NIC**
New 4" concrete sidewalk w/ lamp black and hand seeded aggregate	2,031	sf	$ 8.00	$ 16,248
Special paving to encourage window shopping	114	sf	$ 20.00	**NIC**
			Subtotal	**$ 30,108**
Irrigation Costs				
Drip irrigation system for trees, (IPS hose in sleeve between tree wells), spray irrigation system for shrubs/groundcovers/pots water meters.	1	allow	$ 5,000.00	$ 5,000
			Subtotal	**$ 5,000**

Site Furnishings				
Wood benches	1	ea	$ 2,000.00	NIC
Artistic bike racks	3	ea	$ 800.00	NIC
Clay pot (includes drainlines)	8	ea	$ 800.00	NIC
Cast stone trash receptacles	2	ea	$ 1,000.00	NIC
Cast stone recycle bins	2	ea	$ 2,000.00	NIC
Cast stone ash urns	2	ea	$ 1,000.00	NIC
Metal tree grates 5' square, painted custom color	3	ea	$ 1,000.00	$ 3,000
			Subtotal	**$ 3,000**
Tree planting preparation costs				
3' depth excavation of area to receive structural soil incl. offhaul	339	cy	$ 25.00	$ 8,475
Structural soil at $35/CY plus placement	339	cy	$ 45.00	$ 15,255
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	210	lf	$ 35.00	$ 7,350
			Subtotal	**$ 31,080**
Landscape and sidewalk maintenance-6 months				
Sidewalk and crosswalk steam cleaning every 6 months	5,141	sf	$ 0	$ 1,285
Landscaping	1,504	sf	$ 0	$ 180
Annual color	325	sf	$ 3	$ 975
			Subtotal	**$ 2,441**
Overall subtotal for North Entry Traffic Calming				**$ 107,705**
25% contingency				**$ 26,926**
TOTAL FOR NORTH ENTRY TRAFFIC CALMING				**$ 134,631**
NORTHEAST STREETSCAPE AREA				**NIC**
NORTHWEST STREETSCAPE AREA				**NIC**
CHARLES STREET AREA				**NIC**
INTERSECTION AREA				**NIC**
HENRY STREET AREA				**NIC**
SOUTHEAST STREETSCAPE AREA				**NIC**
SOUTHWEST STREETSCAPE AREA				**NIC**
BRIDGE AREA MODIFICATIONS				
Pedestrian barriers and control	1	allow	$ 1,000.00	**$ 1,000**
Demolition				
Demo (E) curb & gutter	100	lf	$ 1.00	$ 100
Demo (E) Concrete sidewalk	1,600	sf	$ 1.00	$ 1,600
Irrigation system demolition (Remove valves and cap ex. lines only)	1	allow	$ 500.00	$ 500
			Subtotal	**$ 2,200**
Tree planting preparation costs (For new trees)				
3' depth excavation of area to receive structural soil incl. offhaul	33	cy	$ 25.00	$ 825
Structural soil at $35/CY plus placement	33	cy	$ 45.00	$ 1,485
Install 4" french drain(STR 35 pipe) for trench, connect to storm drain	50	lf	$ 35.00	$ 1,750
			Subtotal	**$ 4,060**
Bridge modification costs				
Remove/ paint/ replace existing metal railing and posts	1	LS	$ 10,000	$ 10,000
Custom concrete lighted sentinels at bridge	4	ea	$ 6,500	$ 26,000
Patch/add existing 4" concrete sidewalk w/ peach colored pavement	1,072	sf	$ 8.00	$ 8,576
Move fire hydrant	1	ea	3000	$ 3,000
				$ 47,576
13.5% Contingency			**Subtotal**	**$ 54,836**
TOTAL FOR BRIDGE AREA				**$ 7,384**
				$ 62,220